PERIODICAL ROOM
GENERAL LIBRARY
UNIV. OF MICH.
FEB 5 1923

Railway Age

FIRST HALF OF 1923—NO. 5 NEW YORK—FEBRUARY 3, 1923—CHICAGO SIXTY-EIGHTH YEAR

Said An Operating Officer:

"We put Boosters on ten of our Mikados. They certainly changed our operating records.

"These same engines were barely able to get over our 0.85 per cent. grade with 3000 tons. Now, with the Booster, they go over the same grade at 15 miles an hour. They've done it with the rails slippery and in the face of a driving snowstorm.

"Winter is here again but it doesn't hold so many terrors for us now."

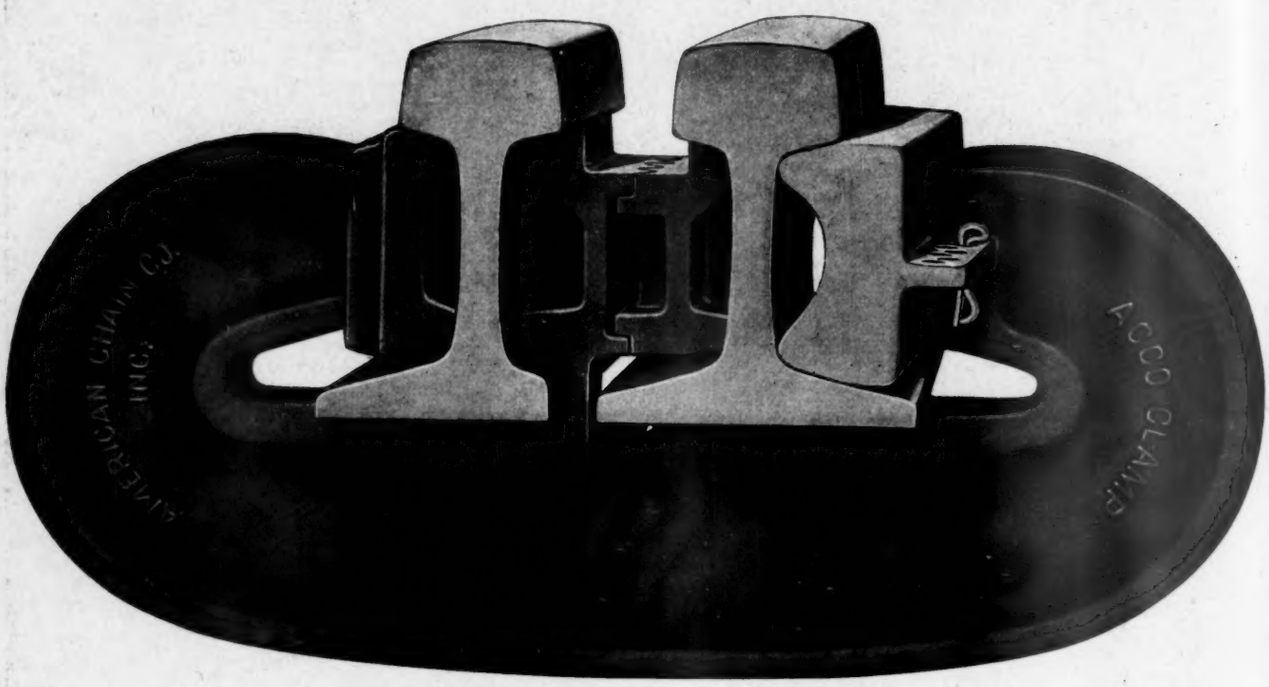
Your tonnage restrictions—your need for more power—your winter troubles—let us tell you what the Booster can do to solve these and other perplexing problems. Write us now.

FRANKLIN RAILWAY SUPPLY CO., INC.

NEW YORK CHICAGO

Alphabetical Index to Advertisements, Page 88 Classified Directory of Advertisers, Page 83

"Acco" Drop Forged GUARD RAIL CLAMP



ACCO GUARD RAIL CLAMPS are drop forged from open hearth steel of an analysis equal to that of your rail specifications and afterwards heat treated to the required physical properties.

The design provides for an increased metal section at points under greatest tension. Filler blocks, end blocks and wedge are made of cast steel and heat treated.

Yokes are interchangeable and can be used on various rail sections by simply using suitable blocks.

American Chain Company

INCORPORATED

Reading Specialties Division

BRIDGEPORT, CONNECTICUT

In Canada: Dominion Chain Co., Ltd., Niagara Falls, Ont.

District Sales Offices: Boston Chicago New York Pittsburgh Philadelphia Portland, Ore. San Francisco

Volume 74 No. 5

Published Weekly by Simmons-Boardman Pub. Co., Woolworth Bldg., New York, N. Y. Subscription Price U. S., Canada and Mexico, $6.00; foreign countries (excepting daily editions), $8.00, and $10.00 a year including all dailies; single copies, 25c. Entered as second-class matter January 30, 1918, at the post office at New York, N. Y., under the act of March 3, 1879.

EDITORIAL

Railway Age

The Table of Contents Will Be Found on Page 5 of the Advertising Section

Railway annual reports have been standardized to a sufficient extent so that a typical annual report is expected to contain certain essential data at least. We expect to find in any annual report, however brief, a section of remarks by the executive to the stockholders and following it the income account, the general balance sheet, the profit and loss account, the details of railway operating revenues and expenses, the details of expenditures for additions and betterments, the traffic statistics, the statement of commodities carried and data as to equipment and mileage. A report containing these things alone generally contains only about 24 pages. Some annual reports contain a vastly greater amount of figures so that reports containing 80, 90, or even 100 pages, are not unknown. The size of the railway annual report will depend in large measure upon the size of the carrier. It is not to be expected that the Southern Pacific or the Pennsylvania—both of which, incidentally, issue excellent reports—would be able to tell its story in the same number of pages as could a road with only a small portion of their mileage and revenues and with a much simpler corporate and financial structure. On the other hand, there are, nevertheless, some annual reports that contain vastly more figures than are necessary with the result that the report as a whole is involved and confusing because of the complicated nature of the material presented. The problem in its essentials is one of giving the stockholders and others interested necessary information. The figures may do that or they may not depending upon what figures are selected and how clearly they show what they are intended to indicate. The amount of information railway annual reports contain is by no means proportional to the size of the respective annual reports. Some railways by a careful selection of material are able to give more actual information in their annual reports in 30 pages than others succeed in showing in twice that number.

More Figures Not Necessary

Preliminary steps were taken at a meeting on January 27 at the New York offices of Julius H. Barnes, president of the Chamber of Commerce of the United States, which may result in a definite, constructive legislative program for the railroads. In attendance at the meeting were executives of several of the country's most important railways and representatives of the automotive and shipping industries. Herbert Hoover, Secretary of Commerce, was also present, although, it was stated, not in an official capacity. Mr. Barnes summarized the discussion at the meeting as pointing to a realization of the necessity of assuring adequate returns to the carriers as a means of making railway investment sufficiently attractive to provide for railway expansion to meet the needs of business. The necessity for formulating and presenting to the public a constructive railroad plan free from any suspicion of self interest was urged. Accordingly, Mr. Barnes was called upon to name a committee representing various interests from the membership of the Chamber of Commerce itself and others to undertake to study the subject and make suitable reports and recommendations. Some of the phases of the transportation problem recommended to the attention of this committee are governmental relations, possible railroad consolidations, possible readjustments of freight rates and co-ordination of railway, highway and water transportation. At this writing Mr. Barnes has not named this committee. The choice of its personnel is important. If it includes men of the right calibre and appreciation of the problem, who at the same time command the respect and confidence of the public, then the work of this committee may go a long way toward upsetting the fine plans of the purely destructive critics of the railways. At any rate, the forming of this committee gives some hope of adequate defensive measures as well as a constructive plan for the future. As such, the move is a welcome one.

For a Constructive Program

In the three months ending with September last the number of passengers killed in collisions in this country was 44, which is 4,300 per cent greater than the number so reported in the same quarter of the preceding year. This great difference in totals is explained mainly by the occurrence in the 1922 quarter of the disastrous collisions at Sulphur Springs, Mo.; Logan, Mo.; Leeds, Mo., and Lester, Ohio. This is the most significant item in the quarterly statistical report just issued by the Interstate Commerce Commission. Comparing by percentages has, of course, no special value in this instance, and this method is here adopted only for the purpose of calling attention to another comparison, not only worthless, but deceptive, which appeared in the newspapers in connection with this governmental report, under the head of "Fatalities in Train Accidents Increased 121.1 Per Cent in First Quarter of Strike." The first error in this headline is in applying this percentage to the total of two classes; (a) "train accidents" (including derailments as well as collisions), which are due, presumably, to the fault of the railroad, and (b) "train service accidents," wherein most passenger casualties are due principally to the passengers' own fault. The study of causes is the only excuse for printing these reports. This percentage is copied from the commission's official statement (not precisely correct) that the figure refers to fatal casualties "resulting from train operations." This item includes 15 cases "getting on or off cars"—where the fatality is not due to a train accident and may or may not be the "result" of the operation or movement of the train. There were 17 in this class in the 1921 quarter—showing a decrease, not an increase. The second error is in assuming that the strike of shopmen had anything to do with the cause of any collision or derailment in this (or any other) three-months' period. The news-editor plays safe; he does not say that the strike caused any fatality, he simply notes the coincidence, as though it meant something; when, in fact, it means nothing. So far as concerns the actual news, as indicated by the figures, it was worse than he made it, as we have shown; but unfortunately, the comparison with 1921 does not afford much help in curing the faults of 1922. In noticing this report, it may be well again to call attention to the comparatively slight value of quarterly statements of the totals in this field. For example, the first comment made

Collisions During the Strike Period

here by the government statistician is—not on the result of those notable collisions—but that the total of fatalities, all causes, fell off 1.2 per cent, while the non-fatal cases increased 15.4 per cent. But it appears that more than a third of the killed were trespassers, while of the injured only one-fifteenth were of that class. Numerous other facts of this kind continually remind the reader that he is engaged in an intricate study which calls for many hair-splitting distinctions; and the *causes* of all these accidents are exceedingly well known already!

December Railway Earnings

Such of the monthly reports of revenues and expenses as have thus far been issued show very favorable net earnings for December. This is about what we should expect. The amount of traffic handled in December, 1922, was unusually heavy. The fall traffic movement continued much later in 1922 than usual. It made November's ton-miles the greatest for that month in the railways' history and continued sufficiently to have a favorable effect on the railways' December gross income. On the other hand, shop strike costs have now been pretty well written off and operations are approaching a much more normal basis with resulting favorable effect as far as expenses are concerned. The real feature that has thus far come to light in the December reports, however, is the Baltimore & Ohio's report. For December that carrier reported a net operating income of $5,138,556. This compared with $1,653,252 in December, 1921, and with $3,081,212 in March, 1922, the B. & O.'s next best month in 1922. The result was that for the year the road reported the best net operating income it has reported since 1917. December and 12-months' figures for a number of typical roads follow:

Road	Net Operating Income December, 1922	Inc. or Dec. compared with Dec., 1921	Net operating income 12 months, 1922	Inc. or Dec. compared with 12 months, 1921
Atlantic Coast Line	$1,232,292	$500,115	$14,416,370	$9,376,803
Baltimore & Ohio	5,138,556	3,485,304	23,735,006	1,881,459
Chicago & North Western	1,165,161	1,674,948	17,036,305	10,385,168
Chicago, Burlington & Quincy	3,067,405	618,119	25,152,173	—3,992,834
Chicago, Milwaukee & St. Paul	1,160,253	1,129,962	13,284,245	8,166,915
Great Northern	1,465,287	209,351	17,276,598	4,410,187
Illinois Central	3,464,359	2,065,987	26,752,737	8,182,476
Lehigh Valley	384,304	—428,100	590,084	—5,252,436
Norfolk & Western	642,677	—1,496,209	18,624,468	3,754,447
Pennsylvania System	6,151,505	6,219,903	79,854,403	39,139,277
St. Louis-San Francisco	1,555,685	321,512	15,232,715	—2,204,562
St. Louis Southwestern	509,961	92,298	4,386,826	371,933
Union Pacific System	3,598,649	1,051,638	33,496,318	—1,820,092

In comparing net earnings in December, 1922, with those for December, 1921, a word of caution is necessary in that the December, 1921, figures for many roads were affected by credits to the expense accounts applying on 1920 operations.

Experience With Electric Traction

"On electrified sections where there is no steam traffic the renewal of catenary and dropper wires necessitated by corrosion is only about 10 per cent of that on sections where a heavy steam traffic is still running." "It is found that a new motorman can obtain a working knowledge of the control system in from two to three weeks." These statements appear in a paper presented recently before the Institution of Civil Engineers in England by Henry Walter Huntingford Richards and are outstanding facts which have been verified by twelve years' operation of electric traction on the London, Brighton & South Coast Railway. Rapid development of electric traction has been prevented in all countries by the war, since which other factors have retarded development. maintenance was of necessity deferred. Civil engineers have recently convened to take a hand in the development This period of comparative inaction has, however, permitted experience in practical operation to be gained with unexpectedly heavy traffic with reduced facilities. For example, the shopmen's strike demonstrated the dependability of electric traction equipment and showed that it could be made to operate satisfactorily over comparatively long periods when maintenance was of necessity deferred. Civil engineers have recently convened to take a hand in the development of electric traction and a preliminary report was presented to the American Society of Civil Engineers on January 17, 1923. This report states that in the opinion of the committee, electrification of steam railroads is not primarily or even largely a question of the choice of a particular system or type of electrification, but on the contrary and especially at this time, is more largely dependent on financial and economic conditions. The report states also that if these conditions in any case justify the cost of electrification, little or no difficulty would be had in the selection of the system or type of electrification which would reasonably meet the requirements. It is quite generally recognized that electric operation has progressed beyond the experimental stage and has demonstrated its ability to increase track capacity, relieve tunnel congestion, increase suburban traffic, decrease operating expense, minimize the effect of bad weather conditions, etc. Electric motive power is a comparatively new tool for the railroads, but when used in the right place, it is evidently a valuable one and there are now a number of roads with an eye to the future making investigations to determine the advantages of using or of increasing the use of electric motive power. Enough information and experience is now available to make the findings of such investigations accurate and the possibilities in the use of this new power should not be overlooked.

Increased Efficiency of Operation

THE INTERSTATE COMMERCE COMMISSION has announced an investigation and hearing to determine the adequacy and condition of railroad equipment and the efficiency with which it is being used.

The condition of equipment is still quite unsatisfactory, although much better than it was some weeks ago. As to the efficiency with which equipment is being used, that is another story.

The railways may well welcome an investigation of that matter at this time. Within recent weeks they have been making the best records in the efficient use of equipment ever made at this time of year. They have been helped by mild winter weather, but they have made these records in spite of the fact that the shop employees' strike is still in effect on most roads.

In the three months from October 13, 1922, to January 13, 1923, the total number of carloads of freight moved was 11,728,038. The best previous record ever made in a corresponding period was in 1920-21, when from the middle of October to the middle of January they moved 10,716,273 loads. The record made within the last three months has been 1,011,765 cars, or almost 10 per cent, better than ever before.

Labor leaders and other agitators have been going to the Interstate Commerce Commission and members of Congress and telling them that the railways have been "breaking down" because most of them have not settled with their striking shop employees. These figures are a conclusive answer to that claim.

The latest statistics of the Interstate Commerce Commission which give in detail data showing the efficiency with which the railways have been using their equipment throw much light on the question of how the railroads have succeeded and are still succeeding in handling more business than ever before at the same time of year. The best results ever previously obtained in November in the use of equipment

were those for 1920. The number of tons of freight carried one mile last November was larger than in November, 1920, while the number of freight train miles was smaller. This was due to the fact that in this month in 1920 the average number of tons of freight carried per train was 691, while in 1922 it was 719. Shippers did not load as much freight per car, the average number of tons per loaded car in 1920 being 30.2, and in 1922, only 28.2; but there were more cars in the average train, the number in 1920 being 37, while in 1922 it was almost 39. The average distance cars were moved per day in November, 1920, was slightly less than 27 miles, while in 1922 it was slightly more than this.

To state the matter in another way, while the average load per car showed a reduction, the average miles each car was moved daily showed an increase, and in consequence, in spite of lighter loading, almost exactly the same amount of freight service was rendered daily with each car; and because, on the average, there were more cars in each train, there was more freight service rendered with each train. In November, 1920, almost 37 per cent of all the mileage made by freight cars was made by empty cars. In November, 1922, only about 32½ per cent of the car mileage was made by empty cars.

The shop crafts unions tried to "break down" the railroads, and now they are trying to show that they did so. But the railroads have refused to "break down" and the statistics of operation most conclusively prove it.

A Gigantic Program of Confiscation

THE ATTACKS being made on the railways by radical politicians and labor leaders are of a nature which shows clearly two things; first, that these men are trying to make the railroad question a paramount political issue; and secondly, that they are deliberately seeking to create public sentiment in favor of a more gigantic scheme of confiscation of property than ever has been carried out in any country except Russia.

When men such as the late Glenn E. Plumb and Senator Brookhart began to claim that the tentative valuation of the railways made by the Interstate Commerce Commission in 1920 was 7 billion dollars too large, few people except radical leaders and their more zealous followers took them seriously. But Brookhart and numerous other radicals succeeded last November in getting elected to Congress. The various groups of radicals have pooled their forces in the "Peoples' Legislative Service," the creator of which is Senator La Follette, and they now publicly and seriously announce their purpose to try to secure legislation which will reduce the valuation 7 billion dollars. They are seeking the support of the working men and farmers for such legislation ostensibly as a means of securing extensive reduction of freight rates. But the ultimate object of the various radical groups, is government ownership of railroads, and they want to get the valuation scaled down as a means of enabling the government to buy the railways for billions of dollars less than the tentative valuation.

If there should be such a reduction made in the valuation as is sought it would involve wholesale confiscation of railroad property, whether it were used as a basis for regulation of rates or for government purchase of the railroads. If this bold attempt to bring about confiscation of one-third of the entire value of the railroads is not sufficient to arouse all the people of this country who own property or desire to own it, and all who desire to see the present constitutional system of the United States maintained, to a realization of the true character of the radical movement in this country and of those who are promoting it, then it is difficult to conceive what would be required to arouse them.

Recent developments with respect to railway valuation indicate very strikingly the insincerity and the true motives of many persons who long have advocated a "physical valuation" of the railroads. For years a certain class of men, of whom Senator La Follette of Wisconsin was the leader, claimed that the railways as a whole were enormously overcapitalized. They argued that rates were too high because the railways so made them as to earn a return on watered securities. They demanded that a physical valuation should be made by the Interstate Commerce Commission and that thereafter rates should be so fixed that the railways would be able to earn a return only on this valuation. The railways opposed a physical valuation on the ground that it would not establish a sound basis on which to regulate rates.

Many of those who had really studied the matter became convinced years ago that any valuation which was made in accordance with the principles that had been laid down in numerous cases by the Supreme Court of the United States would exceed the outstanding capitalization of the railroads. The *Railway Age* was among those who took this view. This paper over 12 years ago urged the railways to desist from opposing a valuation. In an editorial in our issue of September 30, 1910, we said, "A fair valuation would simply involve a waste of several millions of dollars of public money and show that the railways as a whole are not only overcapitalized, but are undercapitalized."

Senator La Follette finally got his valuation law passed by Congress in 1913. It prescribed how the valuation should be made and specifically required the Interstate Commerce Commission to make it. The tentative valuation made by the Commission in 1920 exceeded the par value of the securities the railways had outstanding in the hands of the public at that time by almost $2,000,000,000.

Many men who formerly advocated the making of the valuation as it has been made now repudiate it as excessive, and the reasons they give for repudiating it show that they were not moved to advocate it by a real and honest desire to find out whether the railways actually were overcapitalized. These men originally contended that the valuation should not be based upon either the par or the market value of railway securities because, as they claimed, the securities were watered. *Now they condemn the valuation actually made principally upon the ground that it does exceed the par value and market value of the securities.* Evidently their true purpose from the start was to get a valuation that would result in wholesale confiscation; and not having succeeded in getting such a valuation under the legislation passed in 1913, they now advocate the making of another valuation on the very basis which they formerly repudiated. Senator Brookhart in a recent speech in the Senate expressly advocated a new valuation based upon the market value of railway securities. It is upon the ground that the tentative valuation made in 1920 was seven billion dollars larger than the market value of railway securities at that time that he contends that the valuation made was too large.

The market price of railway securities had declined in 1920 to the lowest level ever reached because of government operation and the huge railway deficits it caused to be incurred. Therefore, what Senator Brookhart claims is that the government, having caused an enormous reduction in the value of railway securities, could and should take advantage of its own wrong and make a valuation which would forever prevent railway securities from recovering the value of which government management deprived them.

There are outstanding in the hands of the public less than seven billion dollars of railway stocks. Therefore adoption of this program would be equivalent to wiping out all the railway stock now outstanding and part of the bonds. The accounts showing the investment made in the railroads have

been kept under the supervision of the Interstate Commerce Commission since June 30, 1907. Therefore, if there is water in the investment account, it was put into it prior to 1907.

In that year the total investment in property reported by the railroads was 13 billion dollars. If at that time there was seven billions of water in it, then the total investment that had been made in the railroads up to that time was only six billion dollars. The total mileage in 1907 was 237,000 miles. On this basis they represented at that time an investment of only $25,000 a mile.

There was not at that time a single railway system in the world whose average cost of construction per mile was anywhere near as low as this. The railways of New South Wales, Australia, which have been built and managed entirely by the government, reported at that time a cost of construction exceeding $60,000 a mile. The state railways of Japan reported a cost of construction of $47,000 a mile; the state railways of Denmark a cost of $50,000 a mile; the state railways of Italy a cost of $125,000 a mile and the railways of Germany, most of which were owned and operated by the government, a cost of $110,000 a mile. We cite these figures of government owned railways because practically all those who in this country are advocating railroad confiscation also advocate government ownership. Would any reasonable and honest man contend that in 1907 the railways of the United States represented an investment per mile only one-half as great as the state railways of Japan and Denmark, less than one-half as great as those of New South Wales, less than one-fourth as great as those of Germany and only one-fifth as great as those of Italy? And yet this is exactly what Brookhart and other radicals are contending.

That the adoption of their program of valuation, whether for the purpose of regulation of rates or of government purchase, would involve wholesale confiscation of railroad property no reasonable and honest man can deny. The fact should not be overlooked, either, that a large part of those who are ostensibly aligning themselves under the leadership of La Follette and Brookhart are avowed socialists and communists who openly advocate the confiscation, not merely of railroad property, but of all property. Surely it is an amazing thing that these men should also be able to number among their supporters, nominally at least, a radical element of the farmers. The farmers of the United States own more property than any other single group of people in this country.

The total value of farms and farm property in the United States in 1920 was estimated at $78,000,000,000. This was more than one-fourth of the total wealth of the country. If a policy of confiscation of property is to be adopted, how can the farmers expect their own property to escape its application?

Perhaps they think there are so many of them that they can protect themselves. But there are less than 6,000,000 farmers who actually own or operate farms. There are 3,250,000 farm laborers. Since radical labor leaders are succeeding in inspiring many of the employees of other industries with a desire to confiscate the property of their employers, why should they not succeed later in getting farm laborers to desire to confiscate the property of the farmers? There are over 12,000,000 wage earners employed by manufacturers, railways and mines. These, together with the farm laborers, make 15,250,000 wage earners; and of course, there are millions of wage earners in other industries besides those mentioned. How long will it take the farmers to see that if they should join with radical labor in establishing a precedent for the confiscation of other kinds of property, their own voting power would be wholly insufficient to prevent the application of the same principle to farm property? Since the value of property of the farmers is four times as great as that of railroads it is plain that those who own no property would have far more to gain by confiscating the property of the farmers than that of the railroads.

It certainly is an amazing thing that the people of two such rich states as Iowa and Wisconsin—states whose present wealth could never have come into existence except for the means of transportation with which those who have invested in railroads have provided them—should have sent to the United States Senate two wild men such as La Follette and Brookhart who are advocating the application to the railroads of a communist policy which, if applied to all property, would swiftly convert this country into a Russia. The only possible explanation of it is that the farmers of those states have allowed themselves to be worked into a frenzy by the financial reverses they have suffered in the last three years and by the villainous misrepresentations of railroads which have been made to them and the quack remedies for their own troubles which have been prescribed for them by men of the class mentioned.

Doubtless reason will some time resume its away among the farmers. Meanwhile the cold facts regarding the significance of the program of confiscation of railroads which is being advocated by radical politicians and labor leaders, with the enthusiastic support of all the various groups of socialists and communists, should be squarely faced and the plain issue presented should be squarely met, by all who desire to maintain constitutional government and private property in the United States. Never was such a bold and reckless attack upon these institutions made as is being made now. These attacks should be met and countered with as much boldness and energy as is being shown in making the attacks.

Handicapping the Railroads

A REMARK MADE by a railroad executive, in the course of his testimony at the hearing on the Interstate Commerce Commission's consolidation plan, that the inclusion of a certain weak line in the system into which his road had been put would be "too great a handicap" suggests an analogy which may help at least some railroad officers to appreciate some of the difficulties of the task which the commission has before it. Those who have been either members or victims of a golf handicap committee will be quick to perceive the unlikelihood of universal satisfaction resulting from the efforts of the commission to comply with a law which directs it not only to so group the railroads that the number of systems will be reduced but also so that "the cost of transportation as between competitive systems and as related to the values of the properties shall be the same, so far as practicable, so that these systems can employ uniform rates in the movement of competitive traffic and under efficient management earn substantially the same rate of return."

Since the competition of the railroads during the past 95 years has demonstrated considerable inequality in the performance of the various competitors, the public, as represented by Congress, has now indicated a desire to witness a handicap contest in which the contestants shall be equalized or standardized by the addition or subtraction of existing properties in an attempt to place them all upon a basis where they can each earn "as nearly as may be" to what the commission shall from time to time designate as a fair return. While the railroad president's remarks that the Chicago, Peoria & St. Louis would be a handicap to his system suggests the form of handicapping which is used to equalize the chances of race-horses, by addition of weight, the plan followed by Professor Ripley and by the commission in its tentative plan may perhaps be more aptly compared to the system used in handicapping a golf tournament, in which the

more expert players are penalized by additional strokes while others are given a handicap which may be subtracted from their actual scores. The consolidation plan in attempting to build up systems of a standard financial strength has penalized the stronger systems by including in their groups certain of the weaker roads as an offset, while in other cases it has attempted to increase the opportunities of mediocre or average performers by giving them additional mileage or terminals.

A handicap committee, however, although its problem is also to attempt to equalize future prospects by its knowledge of past experience, has a much simpler task than the commission in one way because the units which it uses are specific and measurable, consisting in golf, for example, of a certain number of strokes, while the handicapping of the railroads is done in composite units of mileage, terminals, freight and passenger traffic, property investment and earning power thereon, grades, physical condition, etc., access to gateways and interchange, and many other elements of a widely varied character.

Also, just as the handicap committee has difficulty in allowing properly for the difference in performance which some players show as compared with others under the strain of actual competition, as well as for many other intangible factors, the commission can hardly be expected to be able to equalize the factor represented by the personnel as distinguished from the material.

Golf handicaps are usually subject to frequent revision, which suggests a query as to whether, if the commission should ever succeed in attaining a fairly balanced arrangement of railroad systems, it would be expected to try to maintain the balance by occasional restandardization. If this is to be expected where would be the incentive for one of the proposed new systems to demonstrate any superiority over the others if it were faced with the prospect of having one of its lucrative branches lopped off and handed over to its competitor?

Further Favorable Testimony for the Whitley Councils

THE COUNCILS and committees provided for under the British Railways Act as a point of contact between management and men are continuing to prove their efficacy as a promoter of cordial relationships.

Felix J. C. Pole, general manager of the Great Western Railway, writing in the Financial Times (London) says:

> "The functions of the councils and committees are generally on the lines of the Whitley report. In addition to the consideration of matters relating to rates of pay, hours of duty and conditions of service, these bodies discuss suggestions in regard to operating, working and kindred subjects, as well as other matters in which the companies and their employees are mutually interested—for example, co-operation with a view to securing increased business, greater efficiency and economy, the well-being of the staff, etc.
>
> "Meetings of the various councils and committees have taken place during the past year. There is every reason to believe that the new machinery has proved entirely satisfactory from the point of view of both the companies and their employees. At the present time the relations between the railway companies, the trade unions and the employees are satisfactory. It is probably not too optimistic to say that those relations were never better and that the developments of the past year justify a sanguine view as to the future."

Similar testimony could doubtless be secured from many other British railway officers and from union leaders as well—this in spite of the fact that the British railway unions are, generally speaking, much more radical in their views than the American unions. The unions and the managements seem to have tacitly agreed not to squabble about the socialistic philosophy of the unions and the capitalistic point of view of the managements. Instead their representatives meet each other as honest men seeking justice for their constituents without unfairness to each other and devote their attention to their business—railroading. The councils and committees which bring officers and workers into closer contact naturally engender and foster this feeling of mutual understanding and respect.

American railway men, officers or rank and file, may well follow closely the fortunes of this British plan, as well as its close counterpart which is in operation on the Pennsylvania Railroad in this country. These experiments hold out the greatest promise for pointing the way toward a solution of one of the most perplexing problems which the railway industry has to face.

Coué and Locomotive Boilers

COUÉ'S presumably well meant ideas about auto-suggestion, aside from furnishing entertainment for minds not otherwise engaged, may deserve some of the consideration received as a cure for ailments which afflict mortals—but for the ailments of locomotive boilers, never. It is action that is needed here, not imagination, and the sooner and more completely a road takes action in unearthing and correcting unfavorable boiler conditions instead of inclining to the notion, whether arrived at by Coué's or any other form of mental gymnastics, that imperfections do not exist, or, if present, are inconsequential or unavoidable, the sooner and more completely can many expenditures incident to locomotive upkeep and operation be transferred from the debit to the credit side of the ledger.

This was brought out forcibly by two papers presented before the Western Society of Engineers, Chicago, on January 22, one by a specialist in correcting faulty boiler conditions, the other by an officer whom experience has taught unqualifiedly to endorse a work about which he was once skeptical. These papers were abstracted in the *Railway Age* of January 27. Primarily they dealt with the subject of water treatment. They disclosed many interesting facts as to the results which have and are being obtained from the work discussed. Among other things, they showed marked reductions in the cost of maintaining power, amounting to $40,000 a year on a single engine district. They disclosed very considerable reductions in coal consumption, one road conservatively estimating the quantity at 70,000 tons a year. They disclosed marked improvements in operating conditions, in the tonnage of trains, in the capacity of locomotives for more regular service, for longer runs, for greater mileage. They disclosed economies which, in the measurable items alone and independent of strike considerations (when water treatment meant much more than mere dollars and cents) far exceeded 100 per cent on the investment.

Recollecting the facts disclosed and the observations made it is to be wondered why more roads have not gone more deeply into the subject of water treatment, inside or outside boilers, than merely to discuss it or at best to rely only upon half measures. It is a source of no little gratification that each year sees increased development along this line, especially by roads already having had experience. But each year should see more development than has taken place. It is not as though the possibilities in this work were unknown. On the contrary, it has been demonstrated time and time again that some troubles in locomotive boilers can be eliminated, that others can largely be corrected, and that substantial economies can be secured at small expense. The substance of the two papers proves conclusively what can be accomplished, once railways actually institute measures in this direction.

Letters to the Editor

[*The* RAILWAY AGE *welcomes letters from its readers and especially those containing constructive suggestions for improvements in the railway field. Short letters—about* 250 *words—are particularly appreciated. The editors do not hold themselves responsible for facts or opinions expressed.*]

One Way to Improve Employee Relations

HAILEYVILLE, Okla.

TO THE EDITOR:

Some time ago a brakeman told me about his having to appear before a trainmaster in an investigation during which the trainmaster actually "cussed him out."

Last summer a dispatcher told me about a superintendent who came on the telephone where the dispatcher was working and used very profane language toward him.

We look to the officials to blaze the trail for us and when they practice such tactics, very little can be expected looking toward harmony from the employees. There is no reason why an official cannot treat an employee, no matter what his position is, with absolute kindness and courtesy. The sooner such rough stuff is cut out just that soon will our relations be improved. The use of profane language at any time, in any place, is not helpful and it leaves a bad impression in the minds of some people. We seldom go into an office of a large business concern and hear the officers and clerks "cussing around," but how many railroad offices do we enter and not hear something of the kind, especially if we are there very long? Let's start a campaign now against the use of profane language in any and all of the branches of the service. To entirely eliminate it will do everybody good and give the railroad men a better standing. J. L. COSS,

Train Dispatcher, Rock Island Lines.

The Tipping Nuisance

LOS ANGELES, Cal.

TO THE EDITOR:

To assert that "tipping" has become a serious problem in this country; that it is affecting the earnings of railroads; and that it is one of the expenses which must be given consideration by those who contemplate making trips, may perhaps be regarded as the wild raving of an unbalanced mind. But what are the facts?

Is it not true that every railroad officer is allowed his legitimate expenses when away from home on company business, and is not tipping regarded as a legitimate expense and something which is unavoidable if you desire to escape being regarded as a "piker?" Is not the thought of having to add tips to dining car meals and to rides in Pullman cars causing a great many passengers to avoid diners, and when possible, sleeping and parlor cars also? Anyone who has traveled much will subscribe to these assertions unhesitatingly.

On a recent trip covering 17 days, a man whose word would not be doubted if his name were revealed, made the statement that, while he exercised reasonable discretion, the money he actually spent for tips during that time amounted to $12.75; enough to purchase a hat and a pair of shoes.

The very least one can hand a dining car waiter is 10 cents at breakfast and 15 cents at other meals. Pullman porters "accept" 25 cents a day but feel aggrieved if not given more. A barber who charges 25 cents for a shave and 50 cents for a hair cut expects at least 10 cents additional in the form of a tip; and if it is withheld, the customer is not likely to fare well at his hands the next time he gets into that barber's chair. If a bellhop pages you he expects a dime; if he carries your grip it is customary to hand him a quarter.

Is any better service rendered in consideration of these tips? Certainly not, but poorer service, if possible, is given to the non-tippers as soon as the fact becomes known that they do not follow this custom. It has reached a point where one must pay to have his hat cared for while eating, pay a nickel or a dime every time he steps into a wash room, or is brushed off in a barber shop; also must tip boot blacks, taxi drivers, manicurists and red caps. All of these employees are, or should be, paid a living wage and the practice of holding up the public to the extent of from two to five dollars a day in addition, for no special favors whatever, is pernicious and unfair and a stop should be put to it. Cannot sufferers be combined in some kind of a gentlemen's agreement which should never be broken, no matter how embarrassing the situation? A. G. M.

Food for Thought

NEW YORK CITY.

TO THE EDITOR:

I am getting to be a pretty constant reader of your paper. I find in its columns much food for thought. Sometimes, though, it is necessary to pick the wheat from a considerable amount of—not chaff, exactly, but from the depths of a good deal of packing. Here are two notable suggestions that appealed to me in the Burlington conductor's letter in your issue of January 20. (1) Three trainmen, who were not thanked for their prompt ingenuity in extinguishing a fire, are now in that state of mind where they "fail to see" little defects which they might cure. The only way in which they can get out of their systems the resentment which they feel toward the superintendent who failed to commend them, is deliberately to neglect opportunities to improve the service. (2) All the rest-rooms and other buildings frequented by freight trainmen on a certain road are small and dirty and (by implication) are sure, by their untidy condition, to discourage the men and thus impair the service.

These two humble, homely, everyday topics deserve the careful attention of both railroad managers and railroad employees. How common they are! Take the first one, jealousy. Who does not smart occasionally, under a feeling of unrewarded effort! But what monstrous foolishness to punish a soulless corporation for the laxity or dullness of a superintendent who, very likely, will wake up a year or two hence and be sorry that he did not commend those three men. The best that they can do is to pray to God to warm that superintendent's soul! I want to tell them, though, that commendation isn't everything. I have read, in the circulars of the Canadian Pacific, the New York Central and other roads, formal commendations, month after month, of men who detected loose wheels, broken rails, fallen brake beams and other dangers. I am not prepared to find any fault with this practice; I guess it is a good thing. It is, surely, good for the officer who does the commending. But, in the nature of the case, these instances must be rare, like diamond rings; and everybody, high or low, must take care and not give too much thought to the matter. Virtue is its own reward; or, in the words of Diogenes, "Virtue is sufficient of herself for happiness." Indeed, I cannot believe that those three Burlington men really are so shortsighted. All the Burlington men that I have known have been large-hearted, forward-looking fellows!

The other topic, dirty rooms, is so time-worn that it is depressing to think of it. I have been reading lectures on it in your columns for many years. But everybody in America is today in duty bound to be an optimist, and so I suppose that we shall go on patting ourselves on the back for every new station, new dining car, or other evidence that we do, after all, know how to be neat and tidy, on occasion. But the optimist has reigned too long. Let us look at things squarely, and spend more time cleaning house!

This last point is intended for you, Mr. Managing Officer. Yard-masters, freight clerks and others will keep their buildings in good condition, pleasant for employees, the public and everybody, *when you require them to.* And, as a rule, this pressure from above is *the only* way. Since the days of the Dutch housewives who cleaned floors with sand, neatness has never flourished, spontaneously, outside of remote New England villages where the housewives take premiums for beating the Dutch women's records! Someone possessing authority must drive. And brakemen's lobbies and yard offices are not the only fields demanding the attention of the man "higher up." Certain large passenger stations have had a reputation for unclean rooms *for years* because somebody has neglected to drive. B. R. BLANCHARD.

Railway Gages Throughout the World

NEW YORK, January 22, 1923.

TO THE EDITOR:

In the *Railway Age* of December 30, there appeared an article on railway gages in various parts of the world, prepared by the Bureau of Railway Economics in Washington. The writer regrets that it came to light, on account of its incompleteness and inaccuracies. When misstatements appear in tabulated form the true facts have difficulty in overtaking the errors.

The article begins by setting forth that in this country it refers only to Class I roads—that is, roads having an operating income of $1,000,000 or more, annually; but this limit of comparative size should have been carried through as to all countries, if comparisons are to be made. It is a hair-splitting difference to omit tabulation of two lines of 2-ft. gage which are owned and operated by the Maine Central (the Bridgeton & Saco River, 20 miles, and the Sandy River, 75 miles). Maine has about 80 miles additional of 2-ft. gage in other lines, owned by small companies.

The Official Guide states that some mileage of the Southern Railway is still 4 ft. 9 in. The writer is not able to learn how much there is of this, or where it is. In 1886, when all the lines south of the Ohio and of Virginia were changed from 5 ft. they were changed to 4 ft. 9 in., which was the Pennsylvania gage at that time; but, as is well known, 4 ft. 8½ in. is now next to universal; so the enumeration of a trifling 4 ft. 9 in. mileage is of no value.

Turning to England, we find an attempt to enumerate all lines down to the little Eskdale line, 7¼ miles, of 15 in. gage. This is really a toy line, the engines being built as models of large engines. It is a public line, it is true, but its attraction is its quaintness. If this line is enumerated, why omit our own curiosities like the Arcata & Mad River, some 15 miles of 3 ft. 9½ in., and some other odd gages? Statistics, to be of value, must be complete.

Hairs are split as to the Brazilian gage, which is known as the Irish gage, and yet hair-splitting is omitted as between England and the Continent. The standard gage in England is 4 ft. 8½ in. but the Continental gage is 4 ft. 8 11/16 in. This also prevails in Victoria, Australia.

Undoubtedly the compiler of this article took his information from some metric figures and converted them back. He must have done so in Chile. The Railway Year Book and the catalogs of English and American car and locomotive builders—people who ought to know—give the broad Chilian gage as 5 ft. 6 in. The Universal Directory of Railway Officers gives gages in the metric system, and probably this explains these fractional inaccuracies. (5½ ft. = 1.676 meters.)

The Canadian statistics are wrong as to narrow gage mileage. The only narrow gage (3 ft. and 3½ ft.) lines in Canada proper are some 200 miles of 3 ft. 6 in. in Prince Edward Island of which some 40 miles has a third rail, giving a mixed gage—4 ft. 8½ in. and 3 ft. 6 in.; and some 90 miles of 3 ft. of the White Pass & Yukon. Newfoundland is not properly Canada, and if the mileage given of 3 ft. 6 in. for Canada is supposed to include Newfoundland it is wrong, for Newfoundland alone has 1,000 miles of 3 ft. 6 in.

Alaska, Hawaii, Honduras, Hayti, Portugal, Cochin China, Java, Sumatra, Algiers, Tunis, Congo Free State, Portuguese East Africa, Nyassa Land, a total of a number of thousands of miles, are omitted entirely, besides the stated omissions in the article of Russia, etc. Tabulations with such omissions are of little value.

Now we come to actual mistakes. The text of the article says—"The Indian Railways—the largest Asiatic system, are divided between the broad gage of 5 ft. 6 in. and the narrow gage of 2 ft." In the tabulation something very different is given: 21,000 of 5 ft. 6 in.; 14,000 of one metre; 1,600 of 2 ft. 6 in. and 582 of 2 ft. The latest information obtainable of a reliable nature gives something quite different: 18,000 miles, 5 ft. 6 in., 15,000 miles, metre; 3,000 miles, 2 ft. 6 in., and 600 miles, 2 ft., which data I find in the article in your January 6 issue on the Indian Railways.

China is the grossest misstatement. The article gives 3,700 miles, 5 ft.; 344 miles, 4 ft. 9 in.; 2,200 miles, 4 ft. 8½ in., and 151 miles metre. The figures given in the Commercial Handbook of China published by our government in 1920, and which certainly the Bureau of Economics should have seen, gives 1,078 miles, 5 ft.; 5,100 miles, 4 ft. 8½ in., and 455, metre. The 5 ft. gage in China is only the cut-off of the Trans-Siberian, via Harbin instead of the original line to Vladivostock along the left bank of the Amoor river. The railways of China proper are standard gage except two short branch lines of metre gage near Hankow and the extension of the French line in Yunan, in South China.

To enumerate all the omissions and mistakes in the article would take too much space. The foregoing will be enough to show its unreliability.

The Railway Year Book (London) is on the whole the best single source of information as to the world's railways. Accurate mileage statistics of this immense field are always difficult to obtain of recent date as reports come in slowly. And mileage, by itself, is of little value. The track gage is only one of three factors that one must know about a line to have knowledge of its economic potentialities. Full particulars of the loading gage and the permissible axle load must be known.

A discussion of these factors in relation to each other on the world's railways is something the writer hopes at some future time to present in proper form. It has required years of study. GEO. B. LEIGHTON.

EAST PITTSBURGH, Pa.

TO THE EDITOR:

In your article on railway gages in the December 30 issue of the *Railway Age,* under the heading of Australia, I notice that you have failed to include some 1,060 odd miles of

standard gage tracks run from Port Augusta in South Australia to Kalgoorlie. This is the government-owned section of the Australian Transcontinental Railway.

LEONARD C. RENNIE,
Power Section, Department of Publicity, Westinghouse Electric & Manufacturing Company.

Real Railroad Salesmanship

PORT ARTHUR, Texas.

TO THE EDITOR:

I have read with considerable interest the articles in recent issues of the *Railway Age* which have touched upon the value of real salesmanship in railroad ticket offices. These offices are the most important points of contact between the railroads and a large number of people. The large city offices seem to get the most attention, but should not the small country station offices also receive careful consideration when the training of men as "transportation salesmen" is being carried on? In fact, it seems as if the small station is the place to train these men and fit them for the duties and responsibilities of the larger offices. Personal contact with the traveler is much easier in the small towns and the opportunity for promoting a spirit of friendship and an understanding of mutual interests is greater.

In the article "Great Need of Salesmanship in Transportation," by C. A. Cairns, in your issue of December 16, the telephone is mentioned as "a rapid firing and a most important sales assistant." It is an instrument which may be used either for the good of the service or against it, and its power in either case is of far-reaching importance.

As an illustration of both sides of this question, the following incident is related. A small town in southern Louisiana is located on the ABC line, from which a branch line 25 miles long connects with the XYZ lines at a well-known rice town. A branch of the XYZ lines also extends south from the first town to the main line at a point about nine miles from the rice town and the two branches form a triangle with the XYZ main line. A few weeks ago it was necessary for me to visit the town on the ABC line and later go to the rice town. The rice harvesting season was in full blast and both branches were working to capacity.

One day about noon I phoned to the ABC office and asked the ticket clerk when the mixed train would leave for the rice town. He replied, "Oh, any old time between now and midnight," and then hung up the receiver. It struck me as being rather a poor way to answer a civil question, especially in view of the fact that the party at the other end of the line might be a prospective passenger. The fare is only 80 cents for the trip in question, it is true, but the clerk did not know whether one or 20 persons were planning the trip. The business might just as well be given to the XYZ branch, over which the service was just about as slow, but the change at the junction point was an objectionable feature.

I called the ABC office again and told the clerk that I did not like his manner of answering my question and I also told him that I did not think his general manager would like to hear that he was doing business in that way. That set him to thinking and he was profuse in his apologies. His excuse was that "people were always calling up and asking fool questions about the trains." He then said he would find out from the yardmaster when the train would leave; he later called me and gave me the best information he was able to obtain.

In the meantime I called the XYZ office and asked for information about their train. I was politely informed that it was impossible to say at that time just when the train would be ready to leave. It was suggested that I call again in about an hour, at which time definite information would be available. I went to the XYZ office later and found that the branch train would not reach the junction point in time to connect with the main line train for my destination. The conductor, who was in the office, lived in the rice town, and he was kind enough to offer to take me over in his car after he tied up.

It is not difficult to decide which of these two men is most valuable to his company. The first man does not seem to realize how much harm he can do by the method he used in this particular case. He is a typical example of ticket agents in the smaller stations, and, sad but true, in the larger stations of a great many places.

The other man deserves encouragement and recognition for even so small a favor as the one mentioned above, for it is these seemingly small matters that go to make up the big things in railroading, and "every little bit helps." When the spirit which prompted this man to offer to help me is instilled in the minds of a larger number of railroad workers, many of the troubles which make railroading a hard game will have been eliminated.

It so happens that I finally decided to go over the ABC line, as its train left first. However, after a slow trip, in a rickety old coach without any lights, I finally reached my destination, having been on the road three hours and thirty minutes, at the rear end of a 30-car train. Had I gone over the other line the time would have been about the same, but I would have left the train with a much better opinion of the road and its employees, in spite of a much delayed supper and the loss of considerable time.

After all is said, what better rule can be followed than the Golden Rule, upon which so much stress has been laid in all of the articles which have been written about the relations between the railroads, their employees and the public? Surely it is worthy of a serious trial in all lines of railroad work!

MECHANICAL ENGINEER.

Prevention of Freight Claims

STROUDSBURG, PA.

TO THE EDITOR:

Your issue of January 27 contains a letter contributed by one B. G. Shipper in connection with the prevention of freight claims, in which he refers to a general appeal recently sent out by radio to "prevent freight claims."

I presume this letter was written by a shipper and the general tone of it is such that I am inclined to feel that he is not exactly in sympathy with the carriers' appeal to their shippers to assist in the prevention of this "thorn in the side." However, the appeal to the public for better packing, better crating and boxing, better marking, etc., is no longer an experiment as it has brought forth even better results than was anticipated. It has not been brought to the attention of the shippers by the railroads alone, but by the express companies and they report equally good resudts.

The railroads have held loss and damage meetings periodically, which have been attended by representatives, not of the operating departments alone, but of the various departments of all branches and there has been created an enthusiasm previously unknown. Every employee has been made to feel a personal responsibility. The matter has been carried right to the shipper, particularly when it has been found that a better package could be employed, better marking, etc. The co-operation which we have found locally, and which we understand exists all over the country has been the means of reducing loss and damage to a minimum.

It goes without saying that every shipper and every consignee is just as vitally interested in the elimination of these losses as the carriers; hence their willingness to correct every possible case that we have suggested. It means satisfied customers from every angle.

Z. L. MATHERS,
Freight Agent, Delaware, Lackawanna and Western.

How Can the Public Learn the Truth?*

Campaign of Misrepresentation of the Railroads Must be Met by Organized Campaign of Education

By F. W. Sargent
General Solicitor, Chicago & North Western

THERE IS NO BUSINESS that more directly affects the immediate welfare of all classes of people and in all sections of the country than transportation. This is so not only because of the common carrier functions of railways, but because the railway industry is the largest of any in the country outside of agriculture. The railways purchase directly one-fourth of the total output of coal in the United States, and one-ninth of the total petroleum production. Directly and indirectly they buy from 30 to 40 per cent of the iron and steel output, 25 per cent of the lumber produced and from 15 to 20 per cent of the copper and brass output, to say nothing of the enormous purchases of paint, glass, rubber, leather and indeed almost all articles of commerce.

A reasonable measure of fair treatment for the railroads will insure a program of industrial development that will produce prosperity both in the factory and on the farm. There are, however, in certain quarters, fog clouds that tend to obscure the vision of men. They rise from an atmosphere of radical misrepresentation.

Every period of financial and industrial depression in the world's history has had its unreasoning extremists willing to capitalize the people's distress for the purpose of self aggrandizement. Witness the vicious attacks upon the national banking system and the deplorable distress extant everywhere in the young republic when Hamilton's policies were for awhile cast aside and our forefathers experimented with wildcat banks and worthless paper money. The danger is no less today unless a remedy is applied now with promptness and vigor. The remedy consists in a campaign of education applied with merciless publicity.

Out through the great agricultural regions our farmers have been the shock troops of deflation. Their sufferings have been capitalized by a class of leadership that would destroy, if possible, their most valuable institutions. While less than eight per cent of the farmers' expenses are represented by transportation charges, they have been told that substantially all their ills are traceable to the railroads and the federal reserve banking system. And what are the railroads doing to present the real facts in so far as the charges made apply to them? There has been a feeble effort at publicity, but no deep-seated, permanent policy that will make the facts plain and easily understood.

Wild Exaggerations

Men have come into political leadership from some of our agricultural states on campaigns of misstatements and misrepresentations. I recently read a copy of a speech made on Labor Day by the newly elected senator from Iowa. Let me quote some of his statements verbatim. Among other things he said: "While I told you the main points in the Cummins railroad law, I would like to tell you some of them a little more in detail. Under this law, the Interstate Commerce Commission was ordered to use the property accounts of the railroads themselves in determining the value of the roads, and they became the principal evidence and principal basis of the valuation of $19,000,000 which the Commission found."

A complete answer to the foregoing is found in the language as contained in Section 15-a of the Act, which provides that: "Such value shall be determined by the Commission, which shall give due consideration to all the elements of value recognized by the law of the land for rate-making purposes, and shall give to the property investment account of the carriers only that consideration which under such law it is entitled to in establishing values for rate-making purposes."

Commissioner Henry C. Hall testified before the Senate Interstate Commerce Committee in January, 1922, in part as follows: "I have seen suggestions that what this Commission did was to accept substantially the property investmen account of the carriers as the basis of its valuation which, as stated in our report, aggregated $18,900,000. That was not the fact. The work of valuation of the railroads had been going on since 1913. All the results produced by years of work on the part of the Bureau of Valuation were utilized covering information as to the original cost of the property, cost of reproduction new, accrued depreciation, amount of the investment, value of lands, and other values and elements of value found in the working papers in our Bureau of Valuation."

In the same speech the senator to whom I refer also said that all the property accounts of the railroad companies are "padded and false and fraudulent and do not represent the true value of the property." It must be clearly apparent that such a statement is nothing more than a wild exaggeration comparable only to his statement in the United States Senate recently to the effect that all supervisory officers under the director general of railroads during the war were traitors just as much as was Benedict Arnold.

But the statement made in his Labor Day speech was vigorously applauded by his audience. He did not stop to explain that the accounts of the railroads were subject to the most careful scrutiny of the Interstate Commerce Commission; that the railroads are prohibited by law from keeping more than one set of books; that these books are public property, subject to the examination and inspection of public authorities charged with the duty of knowing their truthfulness and accuracy.

Proceeding further in his Labor Day speech, the speaker asked his audience whether the government "guarantees you farming folks prices high enough to pay all operating expenses and the hired man and the wife and children for their work," and a voice in the audience cried, "I wish we had," and then the speaker went on to say that the railroads had such a law, and furthermore, had a law that guaranteed them earnings upon 40 per cent of watered value besides.

Such statements are so wide of the truth that to the thinking man it might seem unnecessary to offer an answer. But the audience applauded, and when election time came the speaker was sent to the United States Senate.

Seething Caldron of Falsehood

I have referred to this propaganda to emphasize the danger confronting our social and industrial structure. It has been urged that following an election new Congressmen should be inducted into office forthwith, so that their policies may be at once made effective. What ought to be done is to

*Part of a paper read before the Western Railway Club, Chicago, on January 15.

lengthen rather than shorten the period between a heated political campaign and the day when legislation begins. The intervening time should be devoted to intensive study and to the acquisition of facts. Not a part of the facts only, shaded and colored to meet the purposes of a political campaign, but all the facts essential to a sound and honest conclusion.

What position is a United States Senator in to pass on the merits of rates where, for instance, he publicly proclaims and apparently believes that the freight charges on sheep in his own state are more than the value of the sheep at his home market of St. Paul? Read what Mr. Shipstead, of Minnesota, recently heralded as a glaring example of the destructiveness of railroad rates. Then look up the tariffs, consult the market, and you will be surprised to find how far and how fast some men in public life can travel away from the truth.

I am not referring to these matters with any hope of reforming the authors of such statements. Neither have I attempted to do more than to touch the surface of the seething caldron of falsehood. But what I have said is sufficient to illustrate that the need of the hour is honest thought, inspired by a real, deep seated desire to arrive at the exact truth.

Constructive Suggestions

Railroading is a business. It is a business of vital importance. It ought not to be the Christmas toy of politicians. There is a pressing necessity of an educational campaign to be carried on by organizations whose motives are above suspicion, and whose purposes are not political in their nature. Therefore, every railroad organization, every farmer, and indeed all the people should lend support to the National Transportation Institute, to the end that the truth may be discovered and then disseminated without fear or favor.

The Federation of Farm Bureaus is to be commended for its efforts along these lines. According to press reports that organization recently has announced that its transportation department is arranging for a series of state and county debates on the merits and demerits of the Transportation Act.

Colorado's Example

But most encouraging and progressive of all is the recent action taken in Colorado where, according to the press reports, "Every university in Colorado started courses in electricity, gas, telephone and street railways at the beginning of the year. The subjects are to be treated from an economic viewpoint with an idea of teaching the vital importance of these utilities in every day life." Let us hope that the scope of these courses will be enlarged to include steam railroads in all their relations to our economic life. For after all, the hope of the nation is to be found in our universities, our colleges and our common schools, and in those other indispensable institutions, the home and the church.

Where Are We Heading?

Some of the men in public life today are at heart Socialists. One of the senators to whom I have already referred, attended a socialist convention in Chicago before his nomination at the Republican primaries. At that convention it was decided to burrow from within, and the Socialist party of the senator's state endorsed him and supported him after he had succeeded, by burrowing from within, in securing the nomination. If with this knowledge the people decide upon a policy of collectivism expressed either through nationalization of industries or through communism, well and good, but in any event they have a right to know all that a man is and all that he stands for.

Another class equally injurious to our American institutions are those who always look to the government, state or federal, for the relief of individual ills and the correction of private morals. The thought is all too prevalent that some legislative fiat will do the work that is and ought to be the responsibility of the individual. The result is atrophy of the mental and moral muscles. We have piled statutes upon statutes until today our codes are distinguished by their bulk and their weight. We are becoming lost in a maze of statutory confusion and attempted judicial reconciliation and interpretation. We have regulated and re-regulated. We have created commissions and constructed bureaus upon bureaus. We have filled them with regulators, investigators and prosecutors. The harvest is rapidly ripening. Already we discern a growing contempt for law, and disrespect for authority. Such a legacy we cannot afford to leave to the next generation.

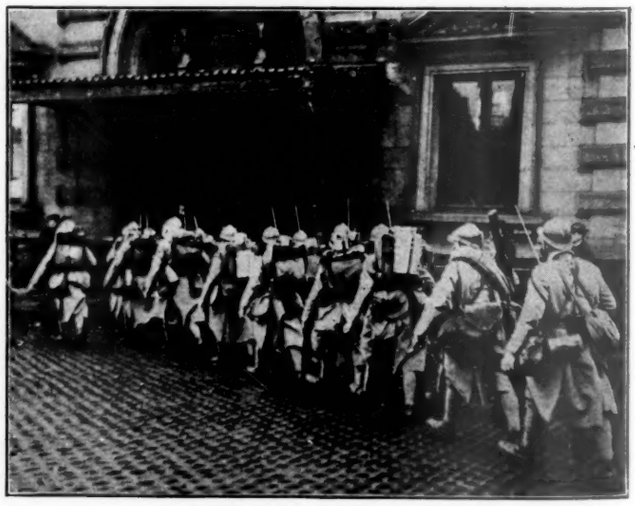
The following recently came out of Kansas: "Safe to say there are in Miami county today 500 officials, national, state, county, township, city and district, telling the people what they must do and what they can't do; spying into their homes, their private accounts, their methods of life, laying down the law as to what they shall eat, drink, wear, buy or spend; where they shall go and when; tell the inspecting nurses where you sleep and why married or why single; show up your bank account, your debts, your toothbrush.

"Upstandingly and outstandingly the average men, women and children are exploited, restrained, assessed, directed, advised, prohibited, mulcted, admonished, damned, threatened, examined, criticized, prayed for and preyed upon, until they are about ready to do as the masses did in England 700 years ago,—run into caves and rudely chalk on the outer walls, 'No money; no religion!'

"Seriously, have we not been overdoing this government intervention in private business?"

Possibly that editor had just suffered a congressional investigation of his basement. Perhaps the complaint is exaggerated. But it illustrates the irritation created by over regulation. It is far better that we have few laws respected and obeyed than to have all laws disrespected because a few are openly disobeyed.

The thing that poisons and degrades is insincerity in thought and purpose. This may be overcome only by holding fast to those fundamental principles that find their lodgement in the homes, the churches and the schools of our country. We must not permit the disintegration of any one of these. If we do, we may expect the disintegration of organized society.



Kadel & Herbert

French Take Railway Station at Mulheim in the Ruhr

The Next Step in Locomotive Construction*

Present Steam Locomotive Needs to Make No Apologies —Suggestions As to Future Developments

By A. F. Stuebing
Mechanical Department Editor, *Railway Age*

SO MUCH HAS BEEN SAID about the shortcomings of the steam locomotives as built at present that it is difficult to discuss the radically different types of motive power that are now being proposed without taking sides in the controversy and presenting a partisan viewpoint. From past discussion it is evident that the opinion prevails in some quarters that no determined effort is being made, or ever has been made, to improve the locomotive and that almost any radical change in the construction would be an improvement. Engineers in other fields seem to have little appreciation of the merit of the underlying principles that have made the standard type of steam locomotive for so long a time the best machine available for railroad motive power. On the other hand, men who have always been accustomed to the steam locomotive show a disposition to defend it under all conditions. I shall not try to present an argument but rather state a few of the important facts on both sides of the case and attempt to point out the relative merits of the various types from the standpoint of their economic value for passenger and freight transportation.

The locomotives used for main line service all over the world for practically 90 years embody three distinctive features—reciprocating pistons direct-connected to the driving wheels, a multi-tubular boiler of the fire-tube type and an exhaust nozzle for creating draft. It was the combination of these three features by Stephenson in 1829 that made the Rocket a success. Many people seem to consider the fact that there has been no change in these fundamental principles of locomotive construction in nearly a hundred years as evidence that the machine is out of date. I believe that further investigation would prove that it was rather a case of the survival of the fittest, for the history of the locomotive shows that there have been many attempts to improve it by radical changes in construction. The best locomotive designers in the country have always been on the alert to improve locomotive construction. Furthermore, the locomotive has a popular appeal to almost everyone and engineers in other fields have brought out many devices for application to the locomotive, some of which have been found to have real merit.

A Survival of the Fittest

To show that the present design of steam locomotive is not the result of the blind following of earlier precedents, let me cite a few examples. A great deal of attention is now being given to the substitution of a fan or blower for the exhaust nozzle as a means of creating draft. Trevethick first used the exhaust steam to increase the draft in 1807. Stephenson made a more successful application in 1829 and only six years later the first front-end fan was tried by Seguin. In 1839 Ross Winans of the Baltimore & Ohio built a locomotive with forced draft under the grate. The fan was driven by the exhaust steam which then passed to a feed-water heater. You are all familiar with later attempts to apply the same principle, the most important of which were the experiments made on the Santa Fe about 1912. Now others are working on the problem so it is evident that the possibilities of mechanical draft have not been neglected. As soon as it can show a substantial saving, the railroads will be found ready to accept it.

If we turn to the cylinders, valves and valve gears, we find the situation very similar. Consistent attention has been given to improving the efficiency of these parts. In fact, in the development of high steam pressures, which is one of the important means of decreasing fuel consumption, locomotives led the way for stationary power plants. Compounding also was given a thorough trial, but most compounds were abandoned because the increased maintenance cost and lack of reliability offset the saving of fuel. When the Corliss valve gear was introduced, reducing the steam consumption of stationary engines, attempts were made to obtain the same benefit in locomotive valve motion but they were never successful because of the mechanical difficulties. If we turn to superheating, I believe we will find the modern locomotive represents the most advanced practice in the application of high superheat to reciprocating engines. The present tendency in engines for stationary service is toward the use of uniflow cylinders. These were applied on locomotives in this country many years ago and more modern designs are now in use in Great Britain and on the continent of Europe.

As long as the reciprocating steam engine was the only type of prime mover, the locomotive was always well up in the front rank of progress and it is only since the introduction of the steam turbine and the internal combustion engine that the efficiency of stationary power plants has shown any marked improvement over the locomotive. For years, engineers have studied the turbo-locomotive but until recently no one has been able to prepare a design that was suitable for railroad work. Nor has the internal combustion locomotive been neglected. Dr. Rudolph Diesel, the inventor of the Diesel engine and a very able engineer, tried to apply his internal combustion engine to a locomotive, but finally gave up because he found the problem so extremely complex and difficult. Many other examples could be cited of unsuccessful attempts to get away from the basic features of the steam locomotive but I believe those already mentioned are sufficient to indicate that the locomotive in its present form has survived because it has certain merits.

Fundamental Requirements

Perhaps the comments which I have already made sound like the conventional defense of the steam locomotive, but that is not my intention in presenting them. I merely want to give a historical background to show that some very able men have devoted their energies to designing substitutes for the steam locomotive without success. It is absolutely necessary to bear in mind that any new type of motive power, if it is to be a success, must be adapted to the existing railroad facilities. This means that it must haul a train load approximating that of the steam locomotive and make equal or greater speed. If the number of trains were to be increased to any considerable extent or the speed reduced by new motive power, the capacity of the lines would be reduced so that it would be necessary to provide additional track and larger terminals. This would involve an enormous capital

*From a paper entitled "Are We Due for a Radical Change in Locomotive Construction?" which was read at the January, 1923, meeting of the New York Railroad Club.

expenditure which could not be justified by any conceivable increase in locomotive efficiency.

Any new type of motive power should be economical in the use of fuel, as simple and sturdy as possible, and what is perhaps most important, it must be reliable. One of the weaknesses and also one of the important advantages of the steam locomotive is the fact that there are very few defects that make it entirely inoperative. It may have leaks and pounds but it will usually bring the train in somehow. Very often this leads to neglect of maintenance which lowers the efficiency of the machine but under such conditions as existed during the strike this high degree of reliability is an invaluable asset, and it is a characteristic that is not found in other types of prime movers.

Fuel Economy and Locomotive Efficiency not Synonymous

One of the common mistakes made by the critics of the steam locomotive is to consider that fuel economy and locomotive efficiency are synonymous. The locomotive must be considered as a transportation machine. From that viewpoint there are many factors besides fuel economy that determine whether it is economical or not. In 1921 the railroads spent $523,000,000 for locomotive fuel, but they also spent $529,000,000 for wages of engine and train crews and $448,000,000 for repairs to steam locomotives. Fixed charges on the investment in locomotives is also very important but is sometimes not given proper consideration because it is not listed in the operating expenses. These are only the major items which are directly affected by the locomotive. Many others are affected indirectly. It is evident that if a new type of motive power reduces the cost of fuel but at the same time causes a greater increase in the expenditures for crew's wages, repairs, fixed charges, etc., it is not an economical transportation machine regardless of its economy from the thermo-dynamic or mechanical standpoint.

Taking into consideration all the factors mentioned above, where can we look for a successor for the steam locomotive? Much, of course, will depend on changes in prices. If the relative cost of fuel becomes much higher, this will operate to the advantage of the types of motive power that are more efficiency from the fuel standpoint. If interest rates become very low the railroads may be justified in using equipment that involves a greater initial investment. However, in the present discussion changes in these relationships will be disregarded because it is impossible to predict how future conditions will affect them.

The Turbine Locomotive

There is no question but what we are justified in accepting the electric locomotive as a satisfactory substitute for the steam machine under certain special conditions. Universal electrification, however, seems to be a long way in the future and there is certain to be a big field for other types of motive power, namely, turbine and internal combustion locomotives, provided they can make good under railroad conditions.

Within the past three years, great progress has been made in the development of the turbine locomotive. Two fairly high-powered units have been built and a third is now under construction. It may be well to consider briefly some of the features of these turbine locomotives to see whether they conform to the requirements already laid down for an efficient transportation machine.

The first high-power turbine locomotive was that constructed by the Swiss Locomotive Works. It is a 10-wheel locomotive converted from the standard type which, of course, imposed many limitations on the design. Nevertheless, it is stated that on its trial trip the locomotive showed a fuel economy of 25 per cent as compared with a compound steam locomotive in similar service. The engine has not been free from mechanical difficulties and up to the present time the builders have not given out a complete description. It is understood, however, that the fan draft did not operate satisfactorily and certain parts of the machinery have failed.

Shortly after the Swiss turbine locomotive was built the Ljungstrom Turbine Company in Sweden finished a quite different design. The engineers of this company are recognized as among the foremost turbine designers and from the engineering and mechanical standpoint the locomotive leaves little to be desired. It has a thermal efficiency of 14.7 per cent, which would be considered a good performance for a large modern power house. In actual service on the Swedish State Railways, the locomotive saved 52 per cent of fuel compared with modern superheated reciprocating locomotives.

From the standpoint of capacity the locomotive does not show up so favorably, as it develops only 1,800 h.p. The designers state that machines with a capacity up to 6,000 h.p. could be produced, but I am inclined to doubt whether a condenser of the required size to give the proper vacuum under all temperature conditions could be built within practical limits of weight and size. The most serious handicap to the introduction of the turbine seems to be the mechanical complications which it involves. There are a great number of connections to be kept tight and the entire mechanism is much more delicate than that of the reciprocating steam engine. This would tend to increase the difficulty of maintenance and reduce the proportion of the time which the locomotive would spend in actual service. The first cost of the turbine locomotive would be about three times that of the steam locomotive of equivalent power and its useful life is indeterminate so the fixed charges would probably be very heavy.

I do not want to take the position of condemning the turbine locomotive for I feel very strongly that we should make a thorough test of all promising innovations and try in every way to utilize the meritorious features. I do believe, however, that in the present state of the art the turbine locomotive is hardly a practical unit for use on American railways and if it is to take an important place in future motive power it must be made more rugged and more simple.

An interesting modification of the geared turbine locomotive is the Ramsay turbo-electric locomotive recently placed in service in Great Britain. In this locomotive the turbine is connected direct to an electric generator, which, in turn, drives the motors on the axles. The electric transmission, of course, increases the cost and weight per unit of power very greatly and would limit the maximum output that could be obtained with locomotives of a given weight. Furthermore, the transmission would probably have a lower over-all efficiency than gear transmission. On the whole, it seems doubtful whether the additional complication over a geared turbine locomotive would be justified.

Diesel Locomotives

This leads us to the consideration of the application of the Diesel engine to locomotive service. It is a very attractive proposition because the Diesel engine has the highest thermodynamic efficiency of any prime mover developed up to this time. Its fuel consumption per horsepower is about one-fourth that of a modern superheated locomotive and because of the fact that there would be practically no standby losses the Diesel locomotive should use not more than one-sixth as much fuel as a steam locomotive. It also offers attractive possibilities of eliminating water and fuel stops and ash pit expenses and reducing the cost of hauling company coal and other fuel.

The two big problems in the application of the Diesel engine to locomotives are first to obtain a reasonable weight per unit of power and second to develop a practical method of starting the train. The Diesel engine, like the gas engine,

will not start itself and will not deliver high torque at slow speeds.

The Diesel engine is similar to the gasoline engine except that the fuel is not ignited by a spark. The compression in the cylinders is carried up to about 500 lb. per sq. in. and the heat generated by compression is so high that when the heavy fuel oil is sprayed in under pressure, it immediately takes fire. The engine is usually started by compressed air from storage tanks which is admitted to some of the cylinders of the engine by a special valve arrangement. The individual units as built at present, range from 20 to 3,000 h.p.

The ordinary Diesel engine is heavy, some designs weighing as much as 450 lb. per horsepower, but special types have been built which are very much lighter. For instance the six-cylinder Diesel engine for the German submarines weighed only 57 lb. per horsepower. The 1,000 horsepower unit was 9 ft. high, about 4 ft. wide and 20 ft. long. If this Diesel engine was to be applied to a locomotive it would take up practically the entire space above the frames up to the limit of the vertical clearance. It would take three such engines to develop as much power as the locomotives that haul the Twentieth Century or the Broadway Limited.

I think we can pass over the problem of reducing the weight per horsepower of the Diesel as that seems to be practically solved at the present time, although the light-weight Diesels are more highly refined than the commercial types, and their cost is considerably greater. I do not think that is a very great obstacle, however. Assuming that it does not hinder the application, we still have the problem of making the Diesel engine develop power when the train is starting or running at low speed.

There are several means by which that can be effected. One is electric transmission, another is hydraulic transmission. Then we have also the possibility of auxiliary air to keep the engine running until the train is under way, and, last, the steam auxiliary.

The electric transmission is heavy and adds greatly to the cost of the unit. The hyradulic transmission is fairly efficient—it is light, but it is expensive, and all the designs that I have seen are difficult to build in large units. The air auxiliary has limited capacity. It is the system that was used on some Diesel locomotives built in Germany. A very large air tank was provided and not only furnished the air necessary to turn the engine over when starting it, but it also furnished power until the train had obtained such a speed that the Diesel engine was within its operative speed range. The lowest running speed as a rule is about one-tenth the maximum, so that an engine rated at 450 revolutions per minute would have a minimum speed of about 45 revolutions. This means, for example, that the Diesel engine if direct-connected could operate at train speeds from 4 to 40 miles an hour.

The steam auxiliary or the so-called Still Diesel engine is the latest development. In the Still engine the heat from the water jackets which surround the cylinders, and usually the exhaust as well, is utilized to generate steam in an auxiliary boiler. It would probably be necessary in locomotive service to supply considerable fuel to the auxiliary boiler, but it would offer the advantage of making steam available to act on the lower side of the pistons, so that the engine could be started and kept running for some time from this source of power. After the train was under way, it could be thrown over to operate as an ordinary Diesel engine.

Engineers are working very hard on the application of these various systems to the Diesel locomotive and there will probably be rapid progress in the development of improved designs.

The Diesel locomotive could effect remarkable savings in fuel and could be built in large units so that it should not increase the unit cost of crew's wages. The first cost would be high but this should be offset by the elimination of delays at ash pits and water stations. It is not unlikely that within the next few years a sturdy reliable Diesel locomotive will be developed which will be a worthy competitor of the steam locomotive.

Electric Traction Recommended for T. & N. O.

ELECTRIC TRACTION was recommended for the Temiskaming & Northern Ontario Railway in a report recently prepared by S. B. Clement, chief engineer, and J. G. Kerry, consulting engineer, of that road. The report was made to the commission in charge of the operation of the railway and was transmitted by the commission to the government of the province of Ontario. Electric traction was recommended as a reliable and economical system of operation for the main line, for the Iroquois Falls and Porcupine branches and for other branch lines where the traffic has been sufficiently developed to justify the additional capital investment involved. The sections for which electric traction was recommended include the main line from North Bay to Cochrane, 252.3 miles, the Iroquois Falls subdivision, 7 miles, and the Porcupine subdivision, 33.1 miles.

The commission's engineers reported that from an operating standpoint electrification would be entirely satisfactory and on the basis of operating and traffic statistics for the year 1921 estimated the cost of electrification. The resulting decrease in operating expenses was found to be in excess of interest charges on the additional investment required. The estimates were all based on 3,000-volt direct current operation, although at this stage of the investigation, the commission has not definitely discarded the possibilities of high voltage alternating current systems.

Cost of Coal Is $9.50 a Ton

A favorable showing for the electrification of the T. & N. O. was due largely to the comparatively high cost of locomotive fuel and the availability of hydro electric power. In the Super-Power Commission report, estimates for railway electrification were based on coal at $5 per ton on the locomotive tender and electric power at one cent per kw. hr., while on the T. & N. O. the average cost of coal is $9.50 per ton and hydro electric power can be generated and delivered for less than one cent per kw. hr. This relatively cheaper energy enabled electrification to make a favorable showing on the T. & N. O., notwithstanding a traffic density less than is usually required for favorable results.

Cost of Electrifying

The estimated cost of electrifying the line to give it a capacity to handle the expected 1925 traffic, calculated at 25 per cent greater than that handled in 1921, was reported as follows: Railway transmission system, 312 miles of 66,000 volt line, $1,279,200; railway substations, seven 1,500 kw. automatic, $735,000; two 1,500 kw. manually operated, $190,000; one 3,000 kw. manually operated, $165,000; one 1,500 kw. portable, on two cars, $90,000; power indicating and limiting device, $62,500; 3,000 volt d.c. power distributing system, overhead feeders and bonding, 410 miles, $2,740,000; twelve 150-ton freight locomotives, $1,800,000; five 150-ton passenger locomotives, $750,000; nine 80-ton switching locomotives, $774,000; ten heater cabs, 43 tons, light, $275,000; gasoline motor repair car for overhead work, $25,000; cost of power development as estimated above, $3,229,078; less salvage value of released steam equipment, $900,000; total cost, $11,214,778.

The report compared the actual cost of operation in 1921,

with steam locomotives, with the estimated cost of operation with electric locomotives, those items affected by the type of power used comparing as follows: (a) With steam power: Water station maintenance, $11,375; fuel station maintenance, $2,495; water, $31,947; locomotive repairs, $307,103; locomotive house expense, $141,985; locomotive depreciation, $21,288; fuel for locomotives, $817,845; hire of freight cars for transporting locomotive fuel, $13,133; transportation of locomotive fuel on T. & N. O., $466,567; total, $1,413,378. (b) With electric power: Water, $250; transmission line maintenance, $24,960; substation operation, $37,000; substation maintenance, $12,500; power distribution system maintenance, $63,000; locomotive repairs, $167,130; locomotive house expense, $37,140; locomotive depreciation, $60,480; electric power supply, operation and maintenance, $96,872; coal for heating passenger cars, $13,000; heating tenders, repairs and maintenance, $18,500; wages, heater tender firemen, $16,650; heater tender depreciation, $5,500; total, $552,982. Balance in favor of electrical operation, $860,936, capital cost of electrification, $10,914,778, this being $300,000 less than above estimate for 1925 traffic, on account of two less freight locomotives being required; rate of interest earned on investment, 7.89 per cent.

The report then compared the costs of operation on the basis of the supposed 1925 traffic, and found a saving of $1,049,596 in favor of electrical operation, or at the rate of 9.35 per cent on the estimated capital cost of $11,214,778. It then compared the costs on the basis of a traffic 50 per cent greater than that handled in 1921, and found a saving of $1,249,738 in favor of electric operation. On a capital cost of $12,105,778 (the increase in capital cost being due to the acquisition of three more freight locomotives, two more passenger locomotives, one more switching locomotive, and two more heater tenders, on account of the increased traffic), that saving would represent a return of 10.31 per cent.

The engineers recommended that the study of detail engineering practice be continued and that plans and specifications for electrification and for power development be completed so that actual tenders for all work involved may be obtained.

The T. & N. O. R. commission, in presenting the report to the Ontario government, recommended that electrification be postponed for the present and the government issued authority for continuing investigations.

The capital funds required by the T. & N. O. R. are provided by the government from the consolidated revenue of the province. The electrification project has apparently received very favorable consideration, but it is quite possible that prior demands upon the revenue of the province may make it inadvisable to proceed immediately with the undertaking. At the present time the investigations are being continued, particularly in respect to the available sources of hydro electric power.

Freight Car Loading

WASHINGTON, D. C.

FREIGHT CAR LOADING during the week ended January 20 continued to exceed all records for the corresponding period and was in excess of any figure previously reported for any week earlier than the middle of March. The total was 865,578 cars, an increase of 134,469 as compared with the third week of January last year and an increase of 156,920 as compared with the year before. Grain loading, 48,280 cars, was in excess of that for 1921, but less than for 1922. Coal loading, 192,824 cars, was in excess of that for both of the two previous years. Livestock was greater than last year but less than in 1921. Merchandise, l. c. l., loading, was also slightly below that for last year, but miscellaneous freight showed an increase of over 74,000 cars over both 1922 and 1921.

The freight car shortage during the period January 7 to 15 showed an increase of 57 cars as compared with the preceding week, to 73,342, which included 28,283 box cars and 37,014 coal cars. At the same time surpluses amounting to 28,282 cars were recorded.

REVENUE FREIGHT LOADED

SUMMARY—ALL DISTRICTS, COMPARISON OF TOTALS THIS YEAR, LAST YEAR, TWO YEARS AGO. WEEK ENDED SATURDAY, JANUARY 20, 1923

Districts	Year	Grain and grain products	Live stock	Coal	Coke	Forest products	Ore	Mdse. L.C.L.	Miscellaneous	Total revenue freight loaded 1923	Corresponding period 1922	Corresponding period 1921
Eastern	1923	7,049	3,239	53,655	2,662	5,504	1,903	52,989	70,575	197,576	.....	.....
	1922	9,999	3,025	37,563	1,724	5,518	693	58,299	60,511	.....	177,332	160,210
Allegheny	1923	2,888	2,999	53,186	7,076	3,059	2,420	42,533	67,635	181,796	.....	.....
	1922	2,817	2,766	46,793	3,612	2,719	917	43,340	43,488	.....	146,452	144,237
Pocahontas	1923	266	72	22,669	506	1,485	168	5,793	3,502	34,461	.....	.....
	1922	250	60	21,383	185	1,082	71	5,230	2,722	.....	30,983	27,421
Southern	1923	5,052	2,409	25,195	1,245	23,731	1,319	37,441	42,080	138,472	.....	.....
	1922	4,636	2,142	21,466	490	15,609	581	36,150	30,880	.....	111,954	111,010
Northwestern	1923	16,120	10,158	9,666	1,853	19,337	1,014	25,740	30,771	114,659	.....	.....
	1922	14,828	9,791	9,440	900	13,944	477	24,178	23,269	.....	96,827	95,820
Central Western	1923	11,959	12,087	23,270	350	7,456	3,617	31,045	44,098	133,882	.....	.....
	1922	14,574	11,545	21,103	226	4,751	804	30,214	29,683	.....	112,900	111,601
Southwestern	1923	4,946	2,826	5,183	125	9,494	459	15,319	26,380	64,732	.....	.....
	1922	5,111	2,481	4,371	132	6,369	760	15,200	20,237	.....	54,661	58,359
Total western districts	1923	33,025	25,071	38,119	2,328	36,287	5,090	72,104	101,249	313,273	.....	.....
	1922	34,513	23,817	34,914	1,258	25,064	2,041	69,592	73,189	.....	264,388	265,780
Total, all roads	1923	48,280	33,790	192,824	13,817	70,066	10,900	210,860	285,041	865,578	.....	.....
	1922	52,215	31,810	162,119	7,269	49,992	4,303	212,611	210,790	.....	731,109	.....
	1921	47,107	35,718	168,179	9,984	48,131	7,905	181,569	210,065	.....	.....	708,658
Increase compared	1922	.....	1,980	30,705	6,548	20,074	6,597	.....	74,251	134,469	.....	.....
Decrease compared	1922	3,935	.....	.....	.....	.....	.....	1,751	.....	.....	.....	.....
Increase compared	1921	1,173	.....	24,645	3,833	21,935	2,995	29,291	74,976	156,920	.....	.....
Decrease compared	1921	.....	1,928	.....	.....	.....	.....	.....	.....	.....	.....	.....
January 20	1923	48,280	33,790	192,824	13,817	70,066	10,900	210,860	285,041	865,578	731,109	708,658
January 13	1923	51,634	37,500	198,686	13,795	68,632	10,763	211,253	381,588	873,251	714,191	715,855
January 6	1923	45,498	31,686	187,746	13,028	57,530	9,718	182,840	242,257	770,303	599,433	697,641
December 30	1922	45,931	26,188	173,378	12,108	44,913	8,175	177,624	222,883	.....	711,200	528,556
December 23	1922	50,802	30,934	181,325	13,243	58,696	8,941	217,256	273,394	.....	834,591	868,605

Compiled by the Car Service Division, American Railway Association.

THE BOOT AND SHOE TRAFFIC ASSOCIATION of New England has been formed by representatives of the principal shoe manufacturers, to look out for the interests of shippers in that line of business. The leaders—what may be called charter members—are B. J. Rounds, Auburn, Maine; F. B. Small, Brockton, Mass.; C. R. Blades, Brockton; E. H. Mayerhofer, New York City, and J. J. Cummings, Manchester, N. H. Mr. Cummings is transportation engineer of the New Hampshire Manufacturers' Association, headquarters of which is at Manchester.

Suggestions for Improving Operating Methods

Central Railway Club Discusses Ways of Increasing Mileage and Tonnage of Locomotives and Cars

THE MEETING of the Central Railway Club held at Buffalo on January 11 was devoted to the consideration of two topics: more miles and more tons per locomotive and per car and how the mechanical department can help the operating department save money. Many prominent railroad officers were present, the meeting being opened by J. J. Bernet, president of the New York, Chicago & St. Louis. Numerous ideas for promoting economy of operation were brought out in Mr. Bernet's address and the discussions, which are abstracted below.

Address of J. J. Bernet

My first interest in the loading of trains and getting out of the locomotive all that could be gotten out of it started when I was a train dispatcher a good many years ago. It has been an interesting subject to me ever since and these few remarks are the conclusions that I have arrived at as the result of those years of study.

The subject for discussion includes two questions: 1. More miles and more tons per locomotive and per car. 2. How the mechanical department can help the operating department save money.

Addressing myself to the first question, as a general proposition it may be assumed that when the loading of a train and the speed are such that gross ton miles per freight train hour are maximum, then the greatest possible use is being made of power and cars.

The maximum use of power and cars, however, is not all that can be desired in freight train operation, although it can safely be said that as a general rule it does produce more miles and more tons per locomotive and per car.

In the operation of a railroad as a whole, and particularly each division separately, there must be taken into account various costs of handling freight as involved in this maximum use of power and cars. These costs are many: some of the most important are interest on the cost of locomotives and cars, their maintenance, per diem charges on foreign equipment, train and engine crew wages per mile or per hour, fuel and other supply costs, with terminal handling of locomotives and cars.

Two of the largest items of expense that are most directly influenced by loading and speed of trains are wages and fuel, and unless the physical characteristics of each division are taken into account, together with the character of traffic, there is danger of increasing either wage or fuel costs, or both, through an effort to secure an absolute maximum use of power and cars as reflected by gross ton miles per freight train hour. This is based on taking a railroad with its equipment and physical condition of the property as it may stand today. Further improvements in miles and tons per locomotive and per car will depend on such study as the operating and mechanical departments make jointly, looking toward an improvement and bringing up to the last minute the power available, and making such improvements in the physical condition of the property as can be justified by increase in the maximum use of the power and cars. These studies must, of course, take into account character of traffic and the demands of the roads' patrons as to the handling of the traffic.

Addressing myself to the second question, how the mechanical department can help the operating department save money. To give the mechanical department the proper start, the operating department must furnish fuel of good quality, and to each operating division, fuel of one grade. After that has been done the mechanical department, by a proper design of locomotives, based on a careful study of the traffic requirements and the physical character of the property over which the locomotives must operate, and then by keeping the locomotives in the best possible working condition so as to least interfere with train operation from the time they cross the turntable until they are released at the other end of their runs, will have given the operating department every help to bring about economical operation.

Too much importance cannot be attached to the question of designing a locomotive to fit the traffic requirements and then keeping the locomotives up to date and in the best possible state of repair, as there is nothing that so disorganizes train movement and creates train operating costs as failures of locomotives between terminals.

The mechanical department can further assist the operating department in arriving at tonnage ratings for the various classes of engines and the various classes of service to bring about the loading of each train to such a maximum as is consistent with the schedule, and the thoroughness with which this is done will again be reflected in the gross ton miles per freight train hour.

Suggestions from R. H. Aishton

R. H. Aishton, president of the American Railway Association, who had been invited to take part in the discussion, sent a letter in which he called attention to the fact that the railroads are constantly being called on to do more work to transport the same tonnage. The increase in the spread between the areas of production and consumption has caused an increase in the average haul from 184 miles in 1900 to 256 miles in 1911 and 326 miles in 1920. The average haul on fruits and vegetables during 1921 was 1,400 miles. This emphasizes the necessity for greater efficiency and reductions in unit costs.

Mr. Aishton advocated anticipating traffic demands, and avoiding deferred maintenance. The best way of increasing the miles per locomotive is to afford adequate repair and terminal facilities. The condition of the locomotive is more important in determining fuel performance than the way in which it is operated. Obsolete freight cars should be rebuilt or retired. The expenditure of a small amount of money to modernize repair tracks is a good investment.

E. J. Devans (B. R. & P.) wrote that in his opinion the most important thing in securing efficient and economical operation is co-operation between departments. With a normal or maximum business, railroad officers should not figure too closely on departmental payroll expense but rather figure what the expenditure will earn the railroad. They should not skimp on supervision but see that the force is sufficient to insure a continuous forward movement of locomotives from the time they arrive at the terminal until they are delivered for service.

The time is not far distant, Mr. Devans stated, when loaded freight cars will get practically main track movement through all terminals. Empty cars should be conditioned before being placed for loading so that there will be no ordinary failure under load.

The Peg System of Freight Train Operation

J. J. Garin (B. R. & P.) told of the methods used on that road to avoid running trains in fleets. A theoretical chart

for the movement of tonnage trains has been established based on the proper observance of speed orders and elimination of avoidable delays. Tonnage trains are ordered when they can move to the best advantage and not conflict with passenger train service. This often works out to make good meeting points for opposing trains with little delay. The yard and mechanical departments are supplied with copies of the chart and they co-operate to have the train and the power ready at the specified time. Delays are checked and the cost figures are charged to the departments responsible. This so-called peg system has resulted in increased miles per locomotive and per car.

D. W. Dinan (N. Y. C.) pointed out that a locomotive while standing still earns no money. The best way for the mechanical department to help the operating department is to prepare the locomotive properly and deliver it on time. Considerable savings can be effected by making minor repair on the inspection pit and turning locomotives without putting them into the roundhouse. In some cases as high as 30 to 40 per cent of all locomotives could be handled in this way. A direct wire from the inspection pit to the dispatcher is useful to allow the inspector to inform the operating department promptly whether the locomotive can be turned within the calling time.

A. R. Ayers (N. Y. C. & St. L.) spoke of the importance of speed as a factor in train operation. He pointed out that the mechanical department benefits by maximum tonnage trains because of the reduction in the number of locomotives handled at terminals. The freight car problem has been a struggle against poor equipment but proper design and reinforcement are improving the situation.

F. C. Pickard stated that at Buffalo the D., L. & W. is turning 40 per cent of its locomotives with repairs made on the inspection pit and by this method is obtaining 5,000 miles per month from freight engines and 10,000 miles from passenger engines. The distribution of locomotive hours in freight service is about 12 hr. at terminal and 12 hr. on the road. Of the latter, terminal delays make up 45 min. and delays on the road 3 hr. and 45 minu. A good powerhouse and a hot water washout system are essential for the prompt turning of locomotives as with ample pressure in the blower line and hot water in the boiler, it is possible to get the locomotive under steam in 45 min. as compared with 2 hr. when cold water is used. Mr. Pickard discussed the criticisms sometimes heard regarding the modern locomotive because more time is required to take care of it at the terminals. In most cases the locomotive has grown more than the terminal facilities, but since modern equipment will handle more tonnage, it would pay the roads to organize so that they can take care of the repairs in the same time that is required for locomotives not equipped with modern accessories.

T. C. Donaldson told of the results being obtained by pooling locomotives on the B. R. & P. Prior to November 1 the engines were regularly assigned and were held in the terminal from 8 to 12 hr. or more. Since all locomotives were put in the pool, they are making 1,000 to 1,200 more miles per month. The time at terminals was reduced by putting more men on the enginehouse force so that there were enough men available to start work on an engine at once. Delays can be lessened by avoiding the necessity of doing work after the engineer reports and by having standard material ready to make repairs.

M. G. McInerney (B. R. & P.) stated that success in the movement of power is encouraged by a co-operative spirit throughout the organization. He believed that many men do not realize the large investment which is represented by a modern locomotive and advocated inspecting engines upon arrival and doing running repairs at once as there is ordinarily too much delay up to the time work is begun on the equipment.

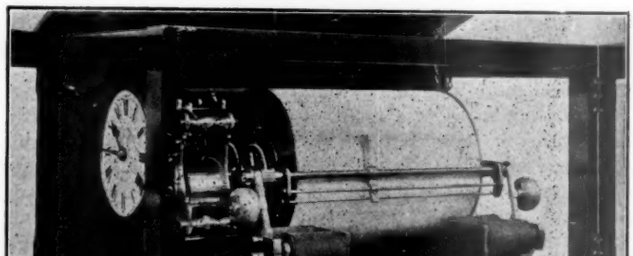
M. W. Hassett (N. Y. C.) stated that in order to turn locomotives properly, it is necessary to have the right kind of power, in good condition and a sufficient force to make repairs. During periods of maximum business the enginehouses should not be crowded with heavy repair work. He found covered inspection pits were of great help in turning locomotives, especially where roundhouse room is inadequate.

Wm. Elmer (Pennsylvania) in a written discussion pointed out that in October, 1922, the 15 principal railroads of the country obtained an average of only 2,606 miles per serviceable locomotive or 84 miles per day. The average speed was probably not less than 12 miles an hour so that the locomotives were actually moving only 7 hours out of the 24. More cars could have been loaded if there had been more locomotives to move the empties and handle the loads. Mileage is reduced by engine or car failures, one of the most important being hot boxes. The motive power department probably had the locomotive two-thirds of the time and a special effort should be made to reduce this proportion.

Automatic Train Recorder

THE MACHINE here described is a combination of clockwork and electro-magnets for recording the time of the passage of each train over a point in a railroad track. It was made by a Scotch firm for use in India.

The operation of the machine is quite simple, the record taking the form of a zig-zag curve drawn on the paper of the drum shown. The drum is of gun metal. It revolves on horizontal bearings and is driven by a powerful spring clock, the mechanism of which can be seen to the left. In front of the horizontal drum is a long screw, geared to the clock, which moves the pen slowly across the paper. Thus the



Automatic Train Recorder

line, drawn longitudinally by the revolution of the cylinder and laterally by the action of the screw, becomes a diagonal line, indicating time. The movement of the pen is uniform except when disturbed by the passage of a train.

The pen carrier is controlled by the electro-magnets shown. By means of a suitable contact at a fixed point on the track, and a corresponding contact on the locomotive, each time an engine passes the point one or other of these electro-magnets is energized, according to the direction in which the engine is moving. When contact is made by the engine, current from the local battery energizes one magnet and the armature is drawn over, the pen carriage being thereby pulled over in the same direction. If the train movement is in the opposite direction the other magnet is energized and the pen is moved in the opposite direction.

The resulting diagram gives a complete record of train

movements at the point, the record being exact to within 30 seconds of the actual time of passing; while the nature of the irregular mark shows the direction in which the train was going. The instrument can, of course, be used to give indications at a distance, and it can be safely housed in an office remote from the track.

The recorder was made by Glenfield & Kennedy, Ltd., Kilmarnock, Scotland.

I. C. C. Urged to Define Valuation Method

Form Used in Tentative Valuations Criticized as Evasive, Ambiguous and Misleading

WASHINGTON, D. C.

VARIOUS DEFECTS declared to exist in the form of the finding of "final value" in a large number of the tentative valuations of railroad property issued by the Interstate Commerce Commission, which is characterized as "obscure, misleading and confusing" as well as representing a failure to comply with the provisions of the valuation law, are set forth in a memorandum filed with the commission by Leslie Craven, counsel, Western Group, Presidents' Conference Committee, urging the necessity of definition and analysis of methods in the commission's findings of final value.

In the arguments before the commission on November 1, 2 and 3 Mr. Craven advanced certain propositions with reference to the form of the findings, contending that the commission should state definitely the nature of the "value" determined and reported, an analysis of the methods of its determination, and an announcement of the decisions of law and fact made by the commission in connection with such determination and as its basis. In the course of the argument two members of the commission suggested that Mr. Craven submit a memorandum showing specifically the form of finding which would include the definition, analysis and decisions suggested. Pursuant to that request Mr. Craven submitted three forms of finding, purely for purposes of illustration, but a large part of his memorandum is devoted to an argument that the commission should now select which one of the various conceptions of value it is to use and make a clear announcement of its selection, instead of merely stating that the value reported is "the value as that term is used in the Interstate Commerce Act." No attempt is made in this memorandum, however, to argue what conception of value should be adopted. Mr. Craven says in part:

Different Conceptions of Value Listed

If the various arguments presented to the commission with reference to the question of final value are analyzed, it will be found that the propositions advanced consist of a number of distinct and independent conceptions, which proceed from, and are based upon, different authorities, which suggest the finding of things, which whether called value or not, are in reality quite different and distinct, and with reference to the proof of which the facts and evidence are in many respects quite different. Merely designating these positions, we may list them as follows:

1. The position that the value which the commission should report is a "value for rate purposes" which is not really value in any proper economic sense, but "what is fair" in the judgment of the commission. Those who have suggested this position have said that the determination should be made from equitable considerations, that such "value" cannot be defined but merely described, and that it is a political and not a judicial concept. Under this theory, value is different for different purposes.

2. The position that the value reported is to be determined by giving predominating consideration to earning power, or earnings present or prospective. Under this conception, the thing determined is the same for both rate and condemnation purposes.

3. The position that the value of the structural property is always to be determined by its reproduction cost, regardless of its productivity. The value of the structural property so determined is said to be the same both in rate and condemnation cases, but there is said to be a difference between a condemnation and a rate case in that the value of the so-called intangible property is to be added in the former but not in the latter.

4. The position that value is to be determined by a consideration of all of the relevant facts, each case to depend upon its own facts, and the kind of facts (*e. g.*, whether the cost or earnings), which are to receive predominating consideration, depending upon the circumstances. You are to value a railroad much as you would a horse, and find out "what it is worth." Under this conception, value is the same for all purposes.

5. The position that the value required by the act is a rate base determined by this commission as a legislative agency and on broader principles than those defined in a confiscation case, where value is a judicial conception upon which compensatory rates are to be fixed, whereas this commission is required to find a basis, not as a judicial, but as a legislative agency, upon which reasonable and not merely non-confiscatory rates are to be fixed.

The commission must make a selection from such conceptions. A definite decision can now be reached. When this selection is made, there are a number of important issues arising in the determination of the particular kind of finding selected, which are a necessary and constituent part of that determination. Issues of law and fact must be decided. Their decision must be announced. What are these issues? How should the reports announce their decisions? Those questions will be here discussed.

Form of Finding Defects

The form of finding* employed by the commission in a large number of tentative valuations heretofore issued is defective for the following reasons:

1. It states that the value reported is "the value as that term is used in the Interstate Commerce Act," whereas, that act does not define value, but contemplates obviously using value for different purposes, the attorneys for the Bureau of Valuation admitting that the act so contemplates. The language of the finding is therefore ambiguous and misleading.

2. The finding states that the value reported is found "after careful consideration" of such an element as the excess cost of acquisition of carrier lands, whereas, this commission is already on record to the effect that this element cannot legally be considered, that is, given probative effect, in the determination of value, and has, in fact, given it no effect in such determination. The finding, therefore, is misleading in that it gives the inference that probative influence has been given to an element which has not received consideration, except the determination that the element legally cannot be considerd.

3. The finding is defective in that it states that consideration has been given to other matters than those which have been submitted in the instant proceeding, it being stated that the decision is made, after a careful consideration of "all the facts submitted in this proceeding" and, *in addition*, "all other matters which appear to have a bearing on values here recorded." No information is given as to what these "other matters" are. This statement implies a consideration of matters given probative consideration, but not properly brought into the record. The law does not permit the commission to consider matters not in the record. If these matters appear in the data of the commission, the order of the commission dated October 9, 1922, which excludes the carriers and the public from inspection of such records, forecloses the opportunity to ascertain this information.

4. The finding is defective in that it contains no "analysis of the methods employed." The valuation act specifically so requires. The carriers and the public are entitled to have an "analysis of

*The following form has been employed in a great many tentative valuations:

"Final Value. After careful consideration of all the facts submitted in this proceeding, and the cost valuations heretofore made, including the excess cost of the carrier lands, appreciation, depreciation, going-concern value, working capital and materials and supplies, and all other matters which appear to have a bearing upon the values here reported, the values, as that term is used in the Interstate Commerce Act, of the properties of the above named carriers owned and used and used but not owned, devoted by the carier to common carrier purposes, are found to be as follows:" (Thereafter are stated the amounts reported as the final values for the property.)

the methods employed" and to protect against them. Furthermore, this failure is violative of the court decisions which have held that there must be provided an opportunity for submitting the issue of value to a judicial tribunal for review upon its own independent judgment, both as to the law and the facts.

The form of finding makes such determination impossible because the decisions of law and fact are withheld. The form is violative of the principles stated by the Illinois supreme court in the case of the *Public Utilities Commission* v. *Springfield Gas and Electric Company*, where the court upset a valuation by the Illinois commission where it employed a form of finding of exactly the same evasive character.

5. The finding is defective in that, although it states that careful consideration has been given to appreciation and going concern value, which admittedly come within the elements designated in the act as "other values and elements of value," the commission has failed to report such values "separately with an analysis of the methods of valuation employed," although the act in terms so requires.

6. The finding is defective in that, although the valuation act requires the commission to report "the classification of elements that constitute the ascertained value" and provides that such classification shall be *prima facie* evidence thereof, no such classification is given.

Even if a definition of the thing found and the analysis of the methods of its ascertainment were not required by law, there are certain obvious practical reasons why this commission ought not to issue its findings in an obscure, misleading, or confusing form. The considerations leading to such a conclusion are briefly these:

Practical Considerations Demand Definite Finding

1. In an attempt to make a scientific valuation of railroad property on sound economic and legal principles and as a basis for the future regulation of the railroad industry, it is clearly essential that the determination be brought out into the light so that every one concern may know exactly what it is. A *sine qua non* of a scientific ascertainment is that it be definite and clear.

2. The public and the carriers are entitled to know what the conclusions of the commission are, how the property has been valued, upon what basis of law and fact, and what has been included and what excluded, in order that evidence may be introduced and authorities presented. The present form of finding leaves the carriers and the public entirely in the dark and makes impossible any adequate consideration of these problems. They have the right to protest against these findings. The form of finding operates to deny the right. If the valuation is high or low as a result of the application in some undisclosed degree of some unannounced principle, evidence and authorities cannot be evoked to show the correctness or incorrectness of the unknown principle or its undisclosed application.

3. The public ought not to be misled by a finding of an undefined sum labeled with an indefinite name and accompanied by no analysis, and which may be understood to state what is not intended to be stated, or to be what it is not intended to be. For example, a finding of so-called "value" which is in reality a rate base, not really value but determined as "what is fair" in the judgment of the commission, instead of as the economic value, or "what is the property worth," will obviously be misleading to those of the public who want to know what the railroad is worth.

4. The finding of "value" in the present form will necessarily create confusion in proceedings in courts, or before taxing authorities, state commissions, or internal revenue officers. The finding of a rate base determined on the basis of "what is fair" in the judgment of the commission, but admittedly not being the economic value in any true sense, will be misleading when there is an attempt to use it (as there will be), in a proceeding concerning a consolidation of the properties. A similar confusion will necessarily exist when such findings are used in any property tax cases, or in connection with the federal income tax. It is not intended here to go into detail, but the following illustration is sufficient: If this commission, in determining a rate base (not true economic value) excludes the value of rights to operate in streets, on the ground that it is not fair that the public pay a return on such property, a finding of value reduced by such an exclusion, without an announcement of the exclusion and the reasons therefor, will obviously be misleading when such finding is attempted to be used by a taxing tribunal, in a consolidation proceeding, in a proceeding involving capitalizing of the company, in a proceeding involving the income tax, or in any investigation in which the true economic value of the carriers' property is under scrutiny.

It will be found that the processes of thought and the determinations and decisions underlying the fixation of value can be defined and stated. To proceed upon the theory that they cannot, is to deprive what should be a scientifically and legally correct solution of a great economic problem of any element of scientific or legal exactitude. What has been done can easily be stated, as the law requires. The committee on tentative valuations of the Bureau of Valuation, which initially has made up the finding of value in the tentative valuations, knows, and can state, exactly what it has done. If not, its conclusions are not worthy of consideration.

What the Finding Should Include

We now come to a more specific discussion of what the finding of value ought to state. The order of discussion will be: first, to state generally what propositions ought to be defined and what analysis ought to be made, and then, second, to suggest specifically the form of such findings.

Speaking generally, the following propositions seem obvious:

1. There must be included in one way or another an exact definition, description, and analysis of the "value," or other thing, which is ascertained. Whichever one of the various concepts is selected should be accurately designated and described. This is not accomplished by the mere use of such phrases as, "value for rate making purposes" or, "rate base," since people do not agree as to what such phrases mean. If it is thought that there is a difference between the thing in issue in a rate making controversy, a confiscation case, a taxation case, or a case for the recapture of the so-called excess earnings, and the sum reported is intended to be only one of these things, it should be clearly so stated.

2. There must be included a decision of the issues of law involved and the authorities relied upon. Attention is directed to these points:

(a) The determination of the kind of "value" reported is a matter of legal principle. The decision of that legal issue should be stated in order that the value reported be clearly analyzed and in order that the propriety of the theory adopted can be reviewed.

(b) Correlative to the decision of the major proposition as to the kind of value ascertained, there are a variety of minor but related issues. Some are primarily issues of law. Some are mixed issues of law and fact. The commission of necessity must make decisions of both law and fact before a final value is made. Such decisions ought to be made known. For example, if a theory of economic value is adopted, there is a set of legal propositions germane to such ascertainment, whereas if the equitable concept is adopted, there is a different set. In the field of facts, the class of facts relevant to one determination differs in some respects from the class relevant to the other determination. Whether a certain kind of a fact, or a certain element, is relevant to the determination, is a question of law. A decision must be made, and when made ought to appear as a part of the analysis of methods, since it is a decision of an issue of law. There are a number of kinds of facts and various elements which, so far as any one can observe, have apparently been given no probative effect in the determinations of the value which have been reported, and a number of kinds of property which apparently have been excluded from probative weight and with reference to all of which whoever made up the finding of value must have formed definite conclusions, although such decisions are not stated in the form of finding which is, for that reason, inadequate. The decisions with reference to these points should be made entirely definite. Among such points there are the following:

1. No probative weight has been given to the cost of acquisition of the carrier lands.

2. No inclusion has been made for the value of property owned by the carrier in industry tracks, the cost of which was paid for by the industry.

3. Property has not been excluded merely because it was acquired by the carrier as a grant, in aid of, or to induce construction (excepting property in industry tracks), or because it was paid for from moneys appropriated from earnings.

4. Nothing has been included for the value of rights in streets, or in the public domain where such rights were secured by the carrier without a capital expenditure. In some cases the original cost of such rights has been included.

5. No attempt has been made to determine the franchise value of the carriers' property and there has been no inclusion for the value of property right of the carrier which exists in the good will of its competitive business, or in its non-competitive business.

6. No inclusion has been made for the value of favorable contracts, location, operating agreements, traffic connections, gradients and curvature.

7. No allowance has been made for such elements of value as those which are due to the existence of a highly developed earning capacity under reasonable rates, made for the carriers generally in the territory in which the carrier operates, where there is a reasonable certainty of the continuance and increase thereof.

8. No probative weight has been attached to the market or par value of the outstanding stocks and bonds of carrier.

There are, in addition, certain other issues which involve points of principle and method, all of which must be decided when a final value is made. If such matters have been excluded from probative effect such exclusion should be stated. On the other hand, if included, the nature and extent of the consideration should be explained. The facts relied upon should be stated, the principles announced and the authorities cited, just as a court does when it

makes, or reviews, a determination of value. Such questions, among others are:

(1) What was the treatment of the value of elements or items of property owned by the carrier, the original cost of which was charged to operation?

(2) What was the treatment of the value of property paid for by the carrier but not owned or directly used for transportation purposes?

(3) What was the treatment of the value of physical appreciation which develops as the result of charges to operation or which develops without the incurrence of cost, there being involved the question whether accrued appreciation exists, to what extent it enhances the value of the plant and whether the property in its present condition is more or less valuable than when new?

(4) What was the treatment of the elements of cost or value attributable as intangible value or going value? If anything was included what was the nature of the element? Did it cover the elements arising from the fact that the physically complete property has been brought to a condition of successful operation, o was it restricted to the elements of value due to the fact that the property is physically complete and did not in addition include the elements of value arising from the fact that it has been brought to a condition of profitable operation. If an allowance was made, was it of such a character that earnings were of probative effec in its determination? Were unamortized deficits of probative effect?

(5) Was the valuation of the carrier lands on the basis of the so-called "present value" reported in the tentative valuations, or on the basis of the present cost of acquisition, or on the basis of the original cost? Where the lands were purchased at or near valuation date at a cost in excess of "present value," how have such lands been treated in the determination of final value?

(6) Were earnings included or excluded from the elements given probative weight in the determination of the value ascertained? If given probative effect, what was the theory of such consideration? Was the theory adopted or rejected that, the value to be ascertained is to be determined by a primary consideration of the productivity of the property as evidenced by the earning capacity? If the value found was a so-called "value for rate making purposes" and distinct from economic or sales value, was such value reduced, as Dr. Needham has suggested it should be in certain cases, when it appeared that the earnings of the property were very poor and that it appeared unfair to require the public to pay a return on a value not so diminished? If so reduced, what were the considerations and reasons underlying such reduction? Was the theory adopted or rejected, if the value was a so-called equitable concept that, in the event the earnings had under certain circumstances been sufficiently high to amortize the investment, the "value" of the property should be reduced by the consideration of such amortization.

(7) Was the theory adopted that accrued depreciation must be deducted, and in the determination of the value reported, was it reduced by the amount of the alleged accrued theoretical depreciation, recorded in the engineering report? In this determination, under the theory adopted by the commission, was it material or immaterial that the carrier had, or had not, made sufficient earnings during the time of the accrual of such alleged depreciation, to offset such depreciation? In the determination of such value, under the theory adopted by the commission, did the commission adopt or reject the theory advocated by the carriers known commonly as the "deferred maintenance theory" to the effect that there should be no deduction for depreciation in a well-maintained railroad in which there is no deferred maintenance?

(8) Under the theory adopted in the ascertainment of *present* value and where the figures of original cost and reproduction cost were equally accurate, but where the reproduction costs were either higher or lower because of the changes in construction costs, did the commission adopt, as the measure of *present* "value," the original, or the reproduction cost figure?

None of the questions which are here suggested lie within a domain where the decision is not subject to clear definition, or where once the decision is made, it cannot be communicated clearly. Each one of these matters must have been decided. Whoever made up these tentative valuations knows what the decisions are. If an examination is made of the decisions of some of the state commissions, or if the masters' reports are read where valuation cases have been submitted to them by the courts, or if decisions by courts where valuations have been analyzed and reviewed are examined, such analyses and explanations in complete detail are found. If a master in chancery should make a valuation in a rate case, and should report a finding of value with the very meager details and explanation contained in the form of finding employed, the case would be immediately remanded to him by the court with orders to submit a definite and intelligible report. It is only upon the basis of a master's report showing the definition of what has been done and the methods by which he has reached his results, that the court can come to an intelligent conclusion as to whether the thing which he has done conforms to the law. What a master in chancery can do, this commission can do. What the law requires of a master in chancery, is required by law from this commission.

Obviously the form must be modified to meet the exact character of determination. If this value is, in fact, determined by indefinite and unscientific methods so unsystematic and so careless that by nature they have no real rationale or analysis, no analysis can be made. But the work of this commission is to be done on no such plane. It must be methodical. If methodical, what this memorandum suggests should be done, can be done. The form of finding employed by the commission, which is printed in nine lines in the first part of this memorandum, does not tell what has been done.

Increased Demand Forces Tie Prices Up

THE FIFTH ANNUAL CONVENTION of the National Association of Railroad Tie Producers, which was held at the St. Charles hotel, New Orleans, La., on January 25 and 26, was characterized by extended discussion of the chaotic conditions now existing in the industry. The entrance of the railways into the market for large numbers of ties, following their almost complete cessation of purchases last year, has caused a rapid rise in prices and active competition for ties which threaten to demoralize the market.

Approximately 50 members were in attendance at the meeting which convened immediately following the close of the meeting of the American Wood Preservers' Association. The sessions were presided over by John H. Johnson (B. Johnson & Son, Richmond, Ind.), president. The association suffered a severe loss shortly prior to the convention through the death of Warren C. Nixon, secretary. The report of the secretary showed that five new members had been admitted during the year and that the total membership was 49.

Conditions in the Industry

A feature of the conventions of this association is the reports from the principal tie producing districts, which reports are summarized as follows:

On the Pacific Coast few mills made any effort to secure any business in 1922 and practically no ties were produced above those required by the roads in that area. During the last 60 days sufficient inquiries had been received from eastern and western roads to indicate that a large volume of business will be available during 1923 at satisfactory prices. The production, however, will depend upon the prevailing prices for lumber which are now more attractive than for ties.

In the Rocky Mountain district including the states of Colorado, Wyoming, Montana and adjacent territory practically all of the ties produced are cut on government land and are cut on direct orders from the roads. Prospects are available for a good tie production in this area in 1923, the principal limitation being the labor supply. The production in this area was practically normal in 1922.

Reports from the North Central district, including the states of Wisconsin and Minnesota, indicated that buying early in 1922 was very limited at prices below the cost of production. Between May 1 and October 1, prices advanced materially and all stocks were cleaned up. The indications are that the 1923 production in this territory will not be over 50 to 60 per cent of the 1920 production in spite of the fact that prices are rising rapidly for much of the hardwood in this territory is now being converted into building lumber.

In the South Central territory, including the states of Missouri, Arkansas, Oklahoma, Louisiana and Texas, the production of ties was discouraged early in 1922 because of the large stocks on hand. As the roads came into the market in the summer and fall and these stocks were absorbed, prices were increased to stimulate production. The roads are now

buying all the ties in sight at prices 50 per cent higher than a year ago with prospects of further increases.

The North Eastern district, including the states of Ohio, Virginia, West Virginia, Pennsylvania, New York and New England, reported prices advancing and production increasing with the prospects that if labor can be secured the production will be considerably increased over last year.

In the South Eastern territory, including the states of Tennessee, Kentucky, Alabama and Mississippi, the production in 1922 was 50 per cent of that of 1920 but it has increased during the summer and the indications are that it will continue to increase, although the high price of cotton is attracting the labor out of the woods.

Among the papers presented was one on The Value of Gum As Tie Material, which is abstracted below:

The Value of Gum Wood As Tie Material

By J. R. Keig

Manager, Hewn Tie and Piling department, Kirby Lumber Co., Silsbee, Tex.

For many years, there has been more or less prejudice against the use of gum wood as tie material. The majority of the railroads have found it undesirable. However, some roads, more especially the Santa Fe, have been able to handle this wood successfully. This road realized that if gum ties were moved from the woods immediately to the track or loading point; were properly stacked for inspection; or loaded promptly for the treating plant; received the necessary care during the seasoning process and were treated according to the most improved methods, there could be no better tie. The gum tie is so highly thought of by the maintenance man on this railroad that the calls are usually for gum in preference to any other class of wood. This applies to both cross and switch ties.

The principal species of gum are red or sweet gum, black gum, cotton gum or tupelo. The gum family is found in the low-lands, usually along the rivers. The Santa Fe has absolute control over the production of ties on its lines in the territory where gum ties are produced. This is very important where there is a possibility of ties being left lying in the woods or on the right of way too long after being produced.

When they are hauled to the right of way, they are not accepted unless indications show that they have been brought out almost immediately. They are stacked on the right of way (two by seven) with plenty of air space to facilitate inspection and improve the seasoning condition, and every precaution is taken to load them in cars before there is any chance for infection.

The Santa Fe has built cars for the transportation of ties. They are practically skeleton cars which allow plenty of air circulation. All ties are stenciled at the time of inspection, showing the month in which they were accepted. This enables the Santa Fe to get an absolute check on the age of ties on the right of way. A report to this effect goes to the officer in charge of the inspection department each month who, in turn, takes the matter up with the tie department.

When the ties are received at the treating plant, they are stacked with each inspection by itself, or if it is not practical to do this, the ties of not more than three different inspections are put in one stack. This is done to insure the treatment of the oldest ties first.

When ties are ready for treatment, they are loaded on flat cars and hauled to a boring and adzing machine. The first unit of this machine is composed of two saws which cut from one-fourth to one-half inch off of each end of the tie, or more if the tie happens to be over-length. This process not only makes all ties of equal length but enables the plant men to make an inspection of the interior of every tie. If the tie proves to be unsound after this inspection, it is culled out. The ties are given a thorough treatment, usually with creosote, and are usually stored in the yard after treatment or shipped to one of the many storage yards on the line, where they are held until in proper condition for insertion.

A system has been worked out whereby gum ties (which are considered hardwood) are used only on curves of two degrees or over and in exceedingly heavy main line tracks, heavy switching leads and certain lines in mountainous territory. They are inserted with care, which means the use of tie tongs and without undue abrasion. Tie plates are used on all ties.

The peculiar structure of gum wood makes it particularly susceptible to preservative treatment and when once thoroughly treated, it retains the preservative better than most other woods. This has a very beneficial effect on the mechanical life of the ties in track. The gum tie is naturally quite resilient and the retention of creosote and consequent lubrication of the fibres of the wood tend to lengthen the mechanical life. There is less plate cutting of the tie and the spike holding qualities are excellent.

The Santa Fe has one instance where gum ties have given 13 years service to date with only one per cent renewals. The Santa Fe's success with gum ties is undoubtedly due to adherence to rigid instructions in the various departments through which the gum tie passes from stump to insertion in the track and also the proper protection thereafter in order to insure the necessary life.

Other Business

Other papers presented included those on Losses on Account of Excessive Season Checking of Ties and Other Timbers, Especially Oak, by C. B. Mitchell, assistant to the president, National Lumber & Creosoting Company, Texarkana, Tex.; Estimating Cross Tie Timber, by Howard Andrews, president, Nashville Tie Company, Nashville, Tenn., and Hazards in Handling River Ties, by T. J. Moss, vice president, T. J. Moss Tie Company, St. Louis.

Discussions were also presented on The Comparative Costs of Present Day Tie Production, by R. J. Witherell, vice-president, L. D. Leach & Co., Chicago; and on Shipping Weights of Ties Before and After Treatment, by J. J. Schlafly, Potosi Tie & Lumber Company, St. Louis, Mo., H. G. McIlhinney, Kettle River Company, Madison, Ill., and J. S. Penney, T. J. Moss Tie Company, St. Louis, Mo.

At the concluding session of the convention the following officers were elected for the ensuing year: President, T. Harmount, The Harmount Tie & Lumber Co., Chillicothe, Ohio; first vice-president, R. J. Witherell, L. D. Leach & Co., Chicago; second vice-president, A. H. Onstad, Weyerhaeuser Timber Company, Tacoma, Wash.; secretary, J. S. Penney, T. J. Moss Tie Company, St. Louis, Mo.; treasurer, Ben J. Finch, Finch Brothers, Duluth, Minn.; directors: Pacific coast, H. M. Cochran, Union Lumber Company, San Francisco, Cal; Rocky Mountain district, George Loff, Standard Timber Company, Evanston, Wyo.; North Central district, H. S. Gilkey, Pendleton & Gilkey, Minneapolis, Minn.; South Central district, Alfred Bennett, Bennett-Field Tie Company, Chicago; North Eastern district, G. D. Baker, Baker Wood Preserving Company, Washington Court House, Ohio; South Eastern district, C. D. Christian, Standard Tie & Lumber Company, Meridian, Miss.

Kansas City was selected as the location for the next convention.

FIVE MEN charged with having placed quicksilver in the boilers of Southern Pacific engines during the strike in September, were found guilty by a jury at El Paso, Tex., on January 26.

Wood-Preservers' Convention in New Orleans

Considers Treatment of Car Materials, Water Tanks, Fence Posts and Other Railway Timbers

THE AMERICAN WOOD-PRESERVERS' ASSOCIATION held its nineteenth annual convention at the St. Charles Hotel, New Orleans, La., on January 23-25, with approximately 150 members in attendance. The greatly increasing interest which the railways are showing in the treatment of timber was evidenced in the papers and reports presented before the convention, including those on the treatment of car materials, fence posts, water tanks and the corrosion of track fastenings. W. H. Grady (general superintendent, American Creosoting Company, Louisville, Ky.), who succeeded to the presidency of the association on the death of F. J. Angier (superintendent timber preservation, Baltimore & Ohio, Baltimore, Md.) last March, presided.

The report of S. D. Cooper (assistant superintendent of timber preservation, A. T. F. L.), secretary-treasurer showed a net gain in membership of 113 during the year, the largest in the history of the association. During the year the association published a manual containing the specifications and recommendations for the treatment of timber adopted by the association.

The threatened shortage of creosote oil was the principal topic for consideration at the convention and several expedients were advocated. In a paper advocating the greater use of zinc chloride E. B. Fulks (Arkansas Preservative Company) pointed out that the railways will require from 60 million to 75 million treated ties annually for the next few years. For 1923 the maximum amount of oil that will be available will be 80 million gallons. Allowing half of this for the treatment of material other than ties leaves enough for the treatment of less than 20 million ties, which deficiency must be made up by the use of other materials.

Roland P. Soule (Combustion Utilities Corporation, New York City), outlined the development in the production of low temperature tars as a by-product in the manufacture of industrial gas. The demand for this gas is increasing so rapidly that the amount of this tar available should increase to 20 million gallons by 1924. From the tests which have been made it appears that the low temperature creosotes produced from this tar have the same penetration and absorption as ordinary creosotes have. Their resistance to evaporation or leeching is greater, their toxicity is considerably higher and they are less corrosive to creosotes.

Based upon an extended investigation which he has made of ties treated with a mixture of creosotes and coal tar and the apparently satisfactory results which are being secured from this treatment, C. M. Taylor (superintendent of timber preservation, P. & R.) presented a resolution providing for the appointment of a committee to investigate the possibilities of using a mixture of these oils with instructions to report within three months. This resolution was adopted and the following committee appointed: R. S. Belcher, manager treating plants, A. T. & S. F., Topeka, Kan.; L. J. Reiser, assistant supervisor tie and timber department, C. R. I. & P., Kansas City Mo.; F. D. Mattos, manager treating plants, S. P., West Oakland, Cal.; H. R. Condon, assistant forester, Penn., Philadelphia, Pa.; Mr. Stone, N. P.; J. A. Vaughan, plant chemist, N. & W., East Radford, Va.; F. S. Shinn, supervisor, C. B. & Q. treating plant, Galesburg, Ill.; O. C. Steinmayer, superintendent timber preservation, St. L.-S. F., Springfield, Mo.; E. Bateman, chemist, Forest Products Laboratory, Madison, Wis.; Galen Wood, chemist, P. & R., Port Reading, N. J., and R. N. Angier, chemical engineer, timber treating plant, B. & O., Green Spring, W. Va.

Report on Car Material Treatment

Wood is used more extensively in car construction than any other material. A detailed study reveals the fact that 82 per cent of all timber removed from cars was removed on account of decay. Consequently the preservative treatment of car material must be given consideration.

Obviously the lading of stock, flat or coal cars will not be affected in any way regardless of the kind of treatment. In 1918 the Marsh Refrigerator Service Company, Milwaukee, Wis., placed in service several refrigerator cars with creosoted sills, sub-flooring and roof boards and to date this company has not received any complaints about contaminated lading. In 1920, the Chicago, Burlington & Quincy placed in service four dining cars with creosoted sub-flooring and no contamination of foods or complaints of passengers have been noted on these cars. In view of these facts it is, then, safe to assume that the treatment of grain car sills will not cause contamination of the lading.

The following material can then be treated by any process desired without any danger of contamination of lading: Sills for stock, flat, coal, grain and refrigerator cars; end posts for stock, coal, grain and refrigerator cars; flooring for stock, flat and coal cars; sub-flooring for refrigerator cars; posts for stock cars; roof boards for refrigerator cars and roofing for stock cars.

Answers to questionnaires sent to the mechanical superintendents of the leading railroads bring out the fact that the average life of various members is as follows:

Stock car decking	2 to 6 years
Stock car sills	5 to 8 years
Stock car roofing	4 to 6 years
Stock car side posts	4 to 6 years
Stock car end posts	6 to 8 years
Flat car decking	6 to 8 years
Refrigerator sills	4 to 5 years
Refrigerator subflooring	3 to 4 years

No road claims more than eight to nine years life for any of the above parts.

Unfortunately, very little car material has been treated so this committee is not in position to offer any conclusive evidence of the average life of treated material. However, we are in possession of the following facts:

In 1911 the Chicago, Burlington & Quincy placed in service 200 stock cars with treated sills and decking (treated by the Bethell process with 12 lb. of creosote oil per cu. ft.) and to date not one piece of that timber has been taken out on account of rot. We feel sure that well treated sills and posts on all classes of cars will never have to be renewed, except those broken in wrecks, and we know that the Burlington will get an average life out of its stock car decking (decking that is subjected to harder usage than any other with the possible exception of refrigerator decking) of at least 16 years.

Using the above figures of four years as the average life of untreated stock car decking and 16 years as the average life of treated stock car decking, we arrive at the following comparison of costs:

UNTREATED	
648 ft. b.m. (36 ft. car) at $40 per M	$25.92
Labor laying deck on car	7.50
Total cost	$33.42
Cost per year	$8.36

Treated	
648 ft. b.m. (36 ft. car) at $40 per M	$25.92
Treatment of 648 ft. b.m. at $15.43 per M	10.00
Labor laying deck on cars	7.50
Total cost	$43.42
Cost per year	$2.71
Difference	5.65

The above figures on the cost of treatment are based on the cost of treating fir lumber with the straight creosote process at the Galesburg treating plant in April, 1922.

The committee is handicapped by lack of data as to the number of years life obtained by treatment but assuming that we may expect 16 years life from stock car decking treated by any of the above processes, we find that the

Yearly maintenance cost of untreated decking is.....$8.36
Yearly maintenance cost of Bethel process treated decking is 2.71
Yearly maintenance cost of empty cell treated decking is.... 2.41
Yearly maintenance cost of Card treated decking is..... 2.33
Yearly maintenance cost of Burnettizing treated decking is.. 2.19

The above figures do not represent all of the saving. In these figures there has been no consideration of the loss of service of the car while it is in the repair yard having decayed parts changed out; neither has any consideration been given to the destruction of other material that is in good condition, because of changing bad order parts.

If car material is to be treated so as to give the lowest possible annual maintenance it must be treated by one of the standard pressure processes. While dipping, spray or brush treatments will increase the life of timber, the life will be increased so much further by pressure treatment that the extra cost will be warranted. This is particularly true with fir and hardwoods.

The collection of data based on results obtained over a period of several years by treatment by different processes is necessary in order to decide definitely what treatment will be the most practical. However, the committee believes that treatment should be made by the creosote, Bethell, empty cell or Card process. The committee is further of the opinion that full cell treatment by the Bethell process will give a bigger net absorption than is necessary. However, we want to call attention to the fact that where the ideal treatment is not available, one of the inferior treatments will be a profitable investment.

We recommend that in the construction of new cars, treatment as outlined above be applied to all material that can be treated without harmful contamination of lading. We also recommend that a sufficient stock of treatment standard material be kept on hand at the repair shops to be used in making repairs on bad order cars.

F. S. Shinn, chairman (C. B. & Q.); K. C. Barth (Service Bureau, American Wood-Preservers' Association); H. C. Bell (N. & W.); S. M. Elder (B. & O.), and Frank McCrory (C. R. I. & P.).

Report on Treated Fence Posts

Replies to questionnaires sent to various railroads, State departments and others requesting data on the life of untreated posts, indicate the average life that may be obtained from the woods listed as follows:

Bois D'Arc	20 years
Catalpa	18 years
Locust	18 years
Cedar	15 years
Chestnut	10 years
Pine	8 years
Oak	8 years

Many of the larger railroads have been using creosoted or zinc treated fence posts in more or less varying quantities for the past eight or 10 years. One eastern line used creosoted beech, birch and maple posts as far back as 1911, but the great majority of the pressure treated posts in service today are creosoted yellow pine, several million of which are on roads in the southwest. These are for the most part round pine saplings cut into 7 ft. lengths with a 4 in. minimum top diameter. They are thoroughly peeled and air seasoned before treatment and, in most cases, are given a 6 or 8 lb. treatment with creosote.

That the creosoted yellow pine posts can be used advantageously in territories where the fire hazard is great is proven by records which have been kept on the Missouri, Kansas & Texas of the number of treated and untreated posts destroyed by fire during the burning of the right-of-way in 1920 and 1921. The following data were furnished by the engineering department of that road:

Period: January 1, 1920, to December 31, 1921.
Location: States of Missouri, Kansas, Oklahoma and Texas.

Posts in Service	Number	Per cent
Untreated	1,651,333	81.3
Creosoted	378,578	18.7
Total	2,030,911	100.0

Posts Destroyed by Fire	Number	Per cent
Untreated	5,795	98.7
Creosoted	76	1.3
Total	5,871	100.0

Per Cent of Total Posts in Service Which Were Destroyed by Fire	
Untreated	3.51
Treated	0.0020
Total	2.89

A direct comparison of the relative fire resisting qualities of treated and untreated posts cannot be made from the above data as many of the untreated posts were partially decayed, making the wood readily susceptible to the flames. But the fact that less than 100 treated posts burned out of a total of more than 378,000 in service is evidence that they are not easily ignited and therefore are desirable in territories where there is danger of fire.

Creosoted pine posts are generally uniform in size and present a noticeable contrast to the cedar and Bois D'Arc commonly seen in right of way fences. There was some objection at first to the use of pine for fence posts on account of the softness of the wood, the thought being that the staple would not be firmly embedded in the wood. This was overcome by increasing the length of the staple.

It is recommended that as many railroads as possible be induced to conduct experiments to determine by actual practice the most suitable post for adoption. The Missouri, Kansas & Texas has used treated posts exclusively for the past six years and in order to secure comparative data between them and steel posts, 10,000 of the latter were purchased recently and test sections established similar to those for cross ties and an accurate service record will be maintained of the posts in these sections.

Concrete posts are in use on a number of roads and if each road would establish sections where the concrete posts could be compared with creosoted or zinc treated pine, the data would be of great value in future years. A direct comparison between all three types of posts, namely: pine, steel and concrete, under the same physical conditions would furnish data from which definite conclusions could be drawn.

W. J. Smith, chairman (M.K. & T.); J. E. Bernhardt (C. & E. I.); I. V. Bowden (K.C.S.); F. G. Moore (Walsh Tie Company), and William Steen (Long-Bell Lumber Company).

Creosoted Water Tanks

By C. R. Knowles
Superintendent Water Service, Illinois Central.

The increasing scarcity of timber suitable for the construction of wooden water tanks, together with the increased cost of such timber, has resulted in a number of railroads

constructing creosoted tanks, this type of tank having been adopted on at least five railroads up to the present time. Although many different timbers are commonly used untreated in the construction of water tanks there are few that are available in suitable sizes and lengths to be used in the construction of large tanks such as railway water tanks, and when the maximum life of the timber is given due consideration the list may possibly be reduced to two timbers, cypress and redwood. The great demand for these timbers—especially in tank grades—has been such that their price advanced rapidly during the war and has since maintained a high level. In addition suitable lengths and sizes of clear heart material are difficult to obtain. The war also had its effect on the cost of steel and concrete tanks, and creosoted timber appears to be one solution of the problem of construction of economical and serviceable water tanks. There are approximately 100 creosoted tanks in service at this time, 90 of which are located on the Illinois Central and the Big Four.

The creosoted tank has an advantage over the untreated wooden tank in the fact that any timber that will take treatment can be used, thus making the cheaper timber having a short life untreated, available for tank construction. The cost of treatment should be considerably less than the difference in the cost of higher priced timber with the result that the completed structure should show a much lower first cost than the untreated tank while the life of the creosoted tank will equal if not exceed that of the best untreated wood. There is also a great advantage in the creosoted tank from a maintenance standpoint by reason of the fact that the treatment makes all staves and bottom plank equally resistant to decay. This is also true of the tower, roof and frost box. If the entire structure is treated, all material should have a fairly uniform life and replacement of parts made necessary by decay will be reduced to a minimum.

In the tanks constructed on the Illinois Central the presence of creosote oil in the water has been so slight as to be hardly noticeable and there has been no detrimental effect upon the water. While no statistics are available as to the liability of the creosoted tank as a fire risk, it is generally conceded that creosoted timber does not offer as great a hazard from fire as untreated timber, especially in heavy mill construction such as a tank tower.

Creosoted tanks are being built by the Illinois Central in two standard sizes, 50,000 gal. capacity with a 16-ft. stave and 24-ft. bottom, and 100,000-gal. capacity with a 20-ft. stave and a 30-ft. bottom. A 20-ft. by 30-ft. tank with a capacity of 100,000 gallons appears to be the economical limit in size.

For reasons of economy wooden towers should not be used for tanks requiring an elevation of more than 40 ft. as steel is more desirable and will show a lower first cost if properly designed, and in all probability a lower cost of maintenance. Towers for railroad water tanks rarely exceed 30 ft. in height and the majority are 20 ft. or less in height. Creosoted timber is admirably adapted to this purpose. The Illinois Central has been constructing creosoted tank towers for over 20 years and now has about 100 in use. The first towers erected are still in service and are apparently good for another 20 years. The maintenance of this type of tower is almost negligible as it does not require painting and framing before treatment, making the life of all parts practically uniform.

A very important feature in the construction of creosoted tanks on the Illinois Central is that all timber more than one inch in thickness is framed before treatment, to secure the maximum life from the treated timber. The work of framing the tank and tower before treatment is given such careful attention at the plant that it is rarely necessary to even bore a hole in the treated timber during the field erection of the tank, and no difficulty whatever is experienced in making the tank water tight. It may be added that framing at the plant before treatment not only insures the maximum life of the timber but also shows considerable economy over the cost of framing in the field.

When the first tanks were constructed on the Illinois Central a great deal of consideration was given to the specification covering the timber used in the staves and bottom plank with a view of getting a thorough penetration of the wood with as little oil as was consistent, as at that time there was some uncertainty as to the effect of the creosote on the water. The decision was to specify that all timber used in the tub should be as near as possible all-sap with the result that the staves used in the construction of the first 18 or 20 tanks creosoted were all sapwood and the bottom planks were all sap on one face and as far as we could judge, the heart was not over one inch thick on any bottom plank.

The Rueping process was used in the treatment of these tanks, 5 to 6 lb. of oil being injected, but on account of the difficulty encountered in getting all-sap staves the timber specifications were modified to include heart wood. The treatment was also changed to the full cell process, using 15 to 16 lb. of oil in order to get better penetration into the heart wood. While we do not get complete penetration on all staves and bottom plank using both heart and sap wood, we do secure full treatment on 75 per cent of the timber and the untreated portion in the center does not exceed one inch at any time. The excellent results we get in the treatment of these tanks is undoubtedly due in no small part to the thorough seasoning of the timber before framing and treatment. During the dry summer months the timber is thoroughly seasoned in from 50 to 60 days and the staves and bottom plank are as dry as a bone when treated.

The creosoted tanks have not been in use long enough to form any definite conclusions as to their probable life from actual service data. With ordinary care in the selection, framing and treatment of timber a conservative estimate of the life to be expected of a creosoted tank is a minimum of 30 years and a maximum of 40 years or more.

Report on Adzing and Boring

The committee made inquiry of those roads which have adzed and bored ties before treatment to ascertain their attitude toward this practice. On the basis of the information secured in this manner the following recommendations were drafted.

1—That after 14 years of co-operative effort on the part of engineers, manufacturers and timber preservers, there have been developed methods whereby the preparation of ties to get the fullest service possible out of their treatment has been reached.

2—That the machinery for accomplishing this work has advanced to a point where there is no possible reason why one should hesitate to install it with full knowledge that there is no more experiment about it than there would be about the installation of a modern planer in a car shop, or a modern lathe in a machine shop.

3—That to get the fullest possible service out of our tie supply we recommend that every tie that can be put through a modern boring and adzing machine before treatment, should be so machined for the following reasons: A—That a perfect rail bearing will be secured without the necessity of adzing after treatment. B—To enable one to adze the tie on an inclined plane with any desirable pitch for the purpose of canting the rail and securing a greater distribution of wear on the head of the rail. C—That perforations under the rail base, "the vulnerable point of a tie," shall be made so that the spike can be driven into treated wood, which in a great many cases is not possible without this perforation previous to treatment. D—That all ties should be stamped

on end in a manner that will give a permanent record as long as they last.

Report on Corrosion of Fastenings

In order to obtain latest information and opinions on this subject questionnaires were sent to 47 leading railroads. Of the 26 companies which replied to the questionnaire and which use zinc chloride in the treatment of ties 13 have noted no appreciable corrosion of track spikes used in ties treated with zinc chloride, 3 have noted some corrosion but report equal deterioration with untreated ties, 4 have noted corrosion but report the same effect from brine drip or indicate that the effect is found only where signal systems are in use, 1 has noted corrosion mainly where coal is used for fuel and particularly where there is cinder filling and 5 report corrosive action in zinc treated ties without similar effect in untreated wood and do not mention any particular conditions of service which might be considered contributing causes.

While the information available shows that there are some cases where the zinc chloride treatment of ties seems to hasten corrosion there are equally authentic cases where under practically the same service conditions no appreciable corrosion has occurred. Cases are also reported where fully as much corrosion has occurred with spikes in untreated ties. The committee concludes therefore that in general the situation is not particularly serious and that where excessive corrosion is noted it would be well to look for causes other than the zinc chloride.

A. L. Heim, chairman (Forest Products Laboratory); G. M. Davidson (C. & N. W.), and A. R. Joyce (Joyce-Watkins Company).

The Lake Pontchartrain Trestle

By W. T. Kelleher

The selection of a practical route for the New Orleans & North Eastern from Slidell, La., to New Orleans, presented a difficult problem because of the necessity for crossing Lake Pontchartrain and the wide marsh surrounding it, the surface of which is only about a foot above the normal level of the lake. Lake Pontchartrain is a brackish shallow body of water varying in depth from 5 to 16 feet.

From the high ground to the north shore of the lake, a distance of 2.34 miles, a trestle of untreated timber was constructed; across the lake proper a distance of 5.82 miles, a trestle of creosoted yellow pine timber was constructed containing two steel draw spans each 250 ft. long; and along the shore south of the lake, a distance of 13.48 miles, a trestle of untreated timber was constructed, the bents being spaced 15 ft. center to center throughout the 21.64 miles of trestle. The driving of this trestle was commenced in February, 1882, and completed in September, 1883, an average of seven pile drivers being used.

In the north approach, untreated piles from 20 to 45 ft. in length, below cut off, were driven. The total penetration varied from 15 to 30 ft.

On the trestle over the lake proper, creosoted piles from 50 to 68 ft. in length, below cut off, were driven. The total penetration varied from 40 to 48 ft., according to the length of the piles and the depth of water which is from 8 to 10 ft.

In the south approach untreated piles from 35 to 50 ft. in length, below cut off, were driven except at water ways entering the lake where spliced piles up to 100 ft. in length were used. The total penetration varied from 31 to 46 ft. except at the waterways where 85 to 90 ft. was obtained.

The filling of the north approach was undertaken in 1887 and completed in 1891. The filling of the south approach was undertaken in 1890 and completed in 1896. After the approaches had been filled, there remained the present trestle constructed of creosoted yellow pine 5.82 miles long. About one and one-fourth miles from each shore a draw span 250 ft. long is located to provide for traffic on the lake. The deck of the trestle is protected by a covering of gravel, the use of which was commenced in 1885 after fire had seriously damaged or destroyed about 325 panels to the water line.

A diving inspection corps is maintained by the Southern railway, and inspection May, 1918, in connection with the Government valuation of railroads showed as follows:

North trestle—length 5,823 ft., contains 389 bents, in May, 1918, 196 of the bents had all piles intact, in 23 bents 1 pile had been cut off at the water line and a short post framed upon this, in 33 bents two piles had been cut off at the water line and two short posts put on, 136 bents had been cut off at water line and a frame bent put on. There is one pony bent on the bridge masonry.

South trestle—length 6,902 ft., contains 462 bents, in May, 1918, 182 of the bents had all piles intact, in 80 bents 1 pile had been cut off at the water line and a short post framed upon this, in 9 bents, two piles had been cut off at the water line and two short posts put on, 192 bents had been cut off at water line and a frame bent put on. There is one pony bent on the bridge masonry.

Middle trestle—length 17,507 ft., contains 1,171 bents, in May, 1918, 386 of the bents had all piles intact, in 162 bents 1 pile had been cut off at the water line and a short post framed upon this, in 8 bents two piles had been cut off at the water line and two short posts put on, 613 bents had been cut off at the water line and a frame bent put on. There are two ponies on the bridge masonry. About 350 bents were burned in a fire which occurred during the construction of the trestle, and a number of the piles were cut off at this time.

Only about 50 caps had been renewed since the original construction. Seven stringers were removed in 1909 for test. The remaining stringers are the original ones.

A report of the Interstate Commerce Commission, Valuation Division made by the structural engineer of an inspection made May 6, 1918, contains the following statement: "A very remarkable state of preservation. The original timber in good condition and apparently carefully selected and well creosoted. Estimated remaining service life of trestle 35 years." According to this estimate, the total life of the trestle is expected to be 70 years.

While data as to the action of the sphaeroma was not available until recent years, these borers were in evidence along the south end of the trestle as early as 1896. The action of the sphaeroma was confined to the extreme south end of the trestle where the fresh water from the canal mixed with the more brackish water of the lake. While no doubt the creosote oil retarded the action of the sphaeroma, some of these piles were eaten away until the diameter was reduced to at least one-half. There were only a few piles so badly eaten, but practically all the piles showed action of the sphaeroma.

When the operation of the N. O. & N. E. was taken over by the Southern Railway System in January, 1917, an increase in the weight of power was made from the axle loads of about 40,000 to loads of 45,000 pounds. On account of this increase in loading and the need of extra strength at the end of the trestle to withstand the effects of breaks and increase of traction due to reduced speed of trains over the trestle, it was considered advisable to drive intermediate creosote pile bents in each panel for a distance of approximately 1,400 ft. from the south end of the trestle. As a matter of fact, possibly the replacement of 30 piles would have restored that portion of the trestle to a strength comparable with that which existed four or five years before.

Aside from the limited portion of trestle where piles have been attacked by the sphaeroma, the main deterioration of piles which has been noticed is due to the interior rot, which has extended from just under the caps, down generally from

18 in. to 30 in. Many of these piles were 20 in. to 24 in. in diameter under the caps, the parts projecting beyond the caps being adzed off. Quite a percentage of the piles showed a solid ring of wood of the creosoted portion, with the interior of the pile in various stages of decay. When this condition develops beyond a proper limit, the bents are re-driven or cut off nearly to the water level. During the last few years more caps have been removed than were removed for many years before. In fact, the tops of some of the piles and a few of the caps are the only parts which have actually showed decay. In this connection, it should be borne in mind that the original construction of the trestle placed plumb piles and batter piles so as to give a wide space at the cap. Thus the stringer bearings do not directly load piles without severely straining caps. For this reason, and in view of the fact that the load on this trestle as far as unit bending stresses and bearing are concerned, is greater than for standard trestles, of the Southern Railway, it has been necessary to replace a number of caps which otherwise might have been left in service. A few stringers are removed from time to time, generally due to some sort of a split condition rather than to decay. The panel length in use at this trestle is 15 ft., so that there is considerable deflection and movement in the timber under locomotive loads.

A considerable part of the renewal work which has been done the last two or three years and which will be continued for the next few years is demanded not so much by decay in the old timber, as it is by need of additional stiffness longitudinally of the trestle and by a decision to increase the protection against the possibility of batter posts being knocked out of place from blows by logs or boats during storms.

The decay of the few piles which have been removed as mentioned above, was undoubtedly caused by exposure of untreated wood due to pile cut off.

Report on Track Service Records

The committee presented statistics showing the cross tie renewals per mile of all tracks for periods reaching back to 1900 on the Pennsylvania, the Michigan Central, the Big Four, the Union Pacific, the Illinois Central, the Kansas City Southern, the Burlington and the Santa Fe, as follows:

Year	P. R. R.	Mich. Central	C. C. C. & St. L.	Union Pacific	Illinois Central	K. C. S.	C. B. & Q.	A. T. & S. F.
1900....	...	269	...	261	...	...	...	...
1901....	289	241	...	242	...	...	...	...
1902....	257	282	...	229	...	...	...	...
1903....	237	237	...	186	...	...	...	...
1904....	215	141	...	303	...	...	...	...
1905....	262	148	369	266	...	...	...	...
1906....	228	173	392	374	...	...	...	...
1907....	247	110	301	317	...	...	...	...
1908....	194	110	275	258	...	...	...	...
1909....	245	272	198	253	...	...	...	...
1910....	236	176	384	267	...	462	...	...
1911....	218	285	388	246	290	432	...	...
1912....	275	208	318	171	267	294	...	...
1913....	260	305	282	231	286	350	...	...
1914....	284	284	269	248	266	354	231	...
1915....	289	335	277	238	253	354	227	...
1916....	241	357	212	253	228	338	203	...
1917....	197	227	202	196	179	240	192	...
1918....	162	197	205	191	161	237	194	...
1919....	192	144	201	185	198	273	162	...
1920....	200	126	156	206	250	290	178	...
1921....	228	154	194	184	...	311	177	149

The figures for the Union Pacific System include cross, bridge and switch ties, 1900 to 1912 inclusive.

Records are based on fiscal years 1900 to 1916, ending June 30th; based on calendar years 1917 to 1921

Other Reports

The Committee on Steam Treatment reported that the steaming of timber during the treating process to improve the absorption and penetration of preservatives has been practiced extensively for many years. Experience has shown that steaming has considerable value for this purpose and under some circumstances is practically a necessity, while under other circumstances the effect of the steaming upon the strength of the wood may be such that its use is inadvisable. It seems to be universally recognized that seasoning of some kind is necessary before treatment. Whether it is best to depend entirely upon air seasoning or steam seasoning, to use a combination of the two, or to adopt some other method, is debatable. The committee reviewed the literature on the subject preliminary to undertaking extensive investigations to determine the effect of steaming and vacuum on the absorption and penetration of preservatives.

Following the presentation of a paper by Earl Stimson, chief engineer maintenance of way, Baltimore & Ohio, at the last convention concerning the practice of the Interstate Commerce Commission in charging the cost of treating ties to operation rather than to capital account, a committee was appointed to make a recommendation to the Interstate Commerce Commission on this subject. The committee reported that the question is one of accounting and in the last analysis has little or no effect on the amount of treated timber used. The committee concluded that the initiative in bringing this question before the Interstate Commerce Commission rests with the individual carrier and recommended that the Wood-Preservers' Association take no further action in the matter.

The Committee on Preservatives presented a proposed revision of the present standard specifications for creosote oil and for creosote coal tar solution for ties and structural timbers to make a definition or description of the origin of the oil a definite requirement and an integral part of the specification.

The Committee on Inspection presented a detailed outline of treating practice with a discussion of basic considerations to be followed in seasoning, handling and treatment.

Other reports presented include those on the treatment of Douglas fir, the electrical conductivity of treated wood and the pressure treatment of poles.

Other Features

Late Wednesday afternoon an inspection of the docks and other structures along the New Orleans waterfront was made by steamer. On Friday, a special train conveyed the members of the association to Lumberton, La., to visit the mills of the Edward Hines Lumber Company, stopping enroute to visit the treating plant of the Southern Creosoting Company at Slidell, La.

At the closing session on Thursday morning, the following officers were selected for the ensuing year: President, H. S. Sackett, assistant purchasing agent, Chicago, Milwaukee & St. Paul, Chicago; first vice-president, E. J. Stocking, vice-president, Central Creosoting Company, Chicago; second vice-president, S. D. Cooper, assistant manager of treating plants, Atchison, Topeka & Santa Fe, Topeka, Kan. Members executive committee: W. P. Wiltsee, principal assistant engineer, Norfolk & Western, Roanoke, Va., and E. E. Pershall, vice-president, T. J. Moss Tie Company, St. Louis, Mo. Kansas City was selected as the location for the next convention.

THE SOUTH AFRICAN RAILWAYS have just awarded to the Natal By-Products, Ltd., manufacturers of "Natalite," a gasoline substitute, a six months' contract for motor fuel for use throughout their motor transport service, according to a report to the Department of Commerce. Natalite, which is a sugar cane distillate made largely from waste material, will be supplied to the South African Railways at one shilling four pence per imperial gallon (26.7 cents per U. S. gallon) free on rail at Mearbank, near Durban. It is understood that this is about one-third under the lowest bid for gasoline. The producers of Natalite claim that their product is 90 per cent efficient as compared with gasoline, and it is evident that even discounting this figure, the substitute must be reckoned with in the future. This is the first large contract that has been secured by any gasoline substitute, and the outcome of the trial will be awaited with interest.

Plans for Radical Railroad Legislation

WASHINGTON, D. C.

CONGRESS has recently made such progress in the passage of the appropriation bills that it is now regarded as reasonably certain that when the present session expires on March 4 it will not be necessary to call the new Congress into extra session after that date. As the next regular session does not begin until December this means that the transportation act of 1920 will have a few more months in which to demonstrate its possibilities without either improvement at the hands of its friends or destruction by repeal or amendment of its principal features at the hands of its enemies.

If no untoward circumstances intervene, the relief thus to be anticipated may even be long enough to show whether under the administration of this law the railroads may earn for some period the rate of fair return which the law and the Interstate Commerce Commission say they should have but which in the three years since it was enacted they have not yet attained for a single month.

By way of foretaste, however, of what may be expected of the new Congress, if a certain wilful but not always harmonious group of its members and members-elect are able to so play their politics, Senator Brookhart has indicated that he may introduce before the close of this session a bill including some of the ideas which he has advanced in his speeches, which would repeal the provisions of the transportation act which provides for a fair return and give the Interstate Commerce Commission jurisdiction over discrimination caused by state rates, and also the provisions creating the Labor Board. By way of substitute for the rate-making rule he has outlined in general terms a proposal to reduce the valuation for rate-making purposes in some way to about $12,000,000,000 by eliminating the "water" and also to place in the hands of the Interstate Commerce Commission the regulation of railway purchases and other expenditures, all for the purpose of reducing rates without reducing the most important item which the rates are supposed to pay for, the wages of labor.

It is understood that this bill will be supported by the so-called "progressive bloc," a new organization which since the November election has greatly reduced the amount of publicity given to the "agricultural bloc," some of whose members it includes, as well as by a number of radical organizations with which many members of the bloc are affiliated, headed mainly by union labor leaders and socialists but camouflaged to some extent by the inclusion of a few members of organizations that claim to speak for the farmers. Some of the "experts" of these organizations are understood to be assisting in the preparation of the Brookhart bill, which is regarded by some of them as an entering wedge for a campaign for government ownership, not only of the railroads but of other basic industries. Senator Brookhart is himself a government ownership man but some of those who will be his confreres in attacks on the railroads will not go so far as government ownership. A committee representing the railroad labor organizations has also been at work for some time on a bill as a substitute for the labor provisions of the transportation act, but representatives of the four brotherhoods say they are not yet ready to engage in a government ownership campaign and in many other respects they are less radical than the union leaders connected with the American Federation of Labor, one of the most active of whom is W. H. Johnston, president of the International Association of Machinists.

A striking illustration of the old saying that "politics make strange bed-fellows" is afforded by the way in which many of the radical politicians from the agricultural states, who were elected largely by farmer votes, have co-ordinated themselves with the work of the various lobbying and propaganda organizations, in which the labor unions are dominant, in spite of the direct conflict in the interests of the two classes. The farmer complains because his railroad rates and the prices he has to pay for manufactured products are so high in relation to the prices he receives for his products and yet he has voted in large numbers for men whom the labor organizations have also claimed as their candidates, sometimes on "farmer-labor" tickets, in spite of the fact that the principal reason for high rates and high prices is the high wages being paid to labor, in the mines, in industries and on the railroads. Some of the radical politicians have succeeded so far in keeping in both camps by fostering the agitation against the capitalists.

The radical leaders have sought to multiply themselves by creating various organizations under different names but closely interlocked through their officers and members of their principal committees. Representatives of the leading farmers' organizations, such as the American Farm Bureau Federation and the National Grange, are not conspicuous in these groups but an appearance of representing the farmer is attempted by the Farmers' National Council and a considerable number of the members of Congress who were elected largely by farm votes are affiliated with them.

Before election the term "radical" was frequently applied to the members of the agricultural bloc, which was more successful in blocking other legislation than in promoting the interests of agriculture, but since the election there has been a further demarkation by the organization of the "progressive" bloc at a meeting on December 1 and 2. This meeting was not attended by some of the most prominent of the agricultural bloc or even by some of the "progressives" who were not particularly desirous of becoming part of the tail of the La Follette kite. It was held under the auspices of the People's Legislative Service, one of the new organizations formed since the Plumb Plan League failed so signally in its attempts to make an impression at the election of 1920. Senator La Follette is chairman of the executive committee and Representative Huddleston of Alabama, one of the chief labor spokesmen in the House, is vice-chairman. President Johnston of the Machinists' Union is secretary-treasurer and a member of the executive committee. Prominent members of this organization are also members and officers of the Conference for Progressive Political Action, the People's Reconstruction League, the Farmers' National Council, and the American Federation of Labor's Political Campaign Committee. All of these organizations have distributed literature attacking the railroads and government ownership is one of their favorite themes. The labor organizations claim to have been an important factor in the election of twenty-four Senators and 156 Representatives but only about 40 of these attended the meeting on December 2. Local state organizations are maintained by the conference for Progressive Political Action and also by the American Federation of Labor Committee.

A RESOLUTION BY Senator Walsh of Massachusetts was adopted in the Senate on January 24 directing the Interstate Commerce Commission to report to the Senate whether it has investigated the feasibility of ordering an embargo on shipments of anthracite coal to foreign countries (Canada), and if no investigation has been made, whether one should not be immediately instituted to determine the advisability of ordering such an embargo. The resolution also requests information as to what other steps have been taken for the equitable distribution of anthracite coal. The resolution states that it is reported that large shipments of anthracite are being sold at retail in foreign countries at a price below the retail selling prices in the United States.

Signalmen Gain and Lose in Labor Board Ruling

Punitive Overtime After Eighth Hour Restored—Requests for Wage Increases Denied

SIGNAL DEPARTMENT EMPLOYEES will again receive time and one-half for overtime after the eighth consecutive hour of service under a ruling announced by the Railroad Labor Board. The new regulations are effective on February 1. The Labor Board in the same decision denied the employees' request for increases in their rates of pay, the Board reiterating its belief that the rates of pay for these employees established on June 10, 1922, by Decision 1074 are still just and reasonable. The Board also removed what the employees contended represented an "unjust equality in the rates of signal maintainers on some carriers as compared with others," by deciding that all signal maintainers now being paid 68 cents an hour should be increased to 72 cents.

The Board's decision in this case again approved the following sections of Article II of Decision 707, reported in the *Railway Age* of February 18, page 438; sections 2, 6, 17, 18 and 20, all dealing with service, overtime and calls.

In addition the following changes in the working rules for signalmen were ordered authorized by the Board. The present rule and the revised rules as announced by the Board, are reproduced side by side for purposes of comparison:

Old Rule

Sec. 11. Sunday and Specified Holiday Work—Full-Day Period—Work performed on Sundays and the following legal holidays—namely, New Year's Day, Washington's Birthday, Decoration Day, Fourth of July, Labor Day, Thanksgiving Day, and Christmas (provided when any of the above holidays fall on Sunday, the day observed by the State, Nation or by proclamation shall be considered the holiday), shall be paid at the rate of time and one-half, except that employees who are regularly assigned to work on Sundays and holidays, or employees who work in place of those so regularly assigned, will be compensated on the same basis as on week days when the entire number of hours constituting the regular week-day assignment are worked, or when released at their own request before the completion of such hours. If released by the carrier before the expiration of the regular week-day assignment, time and one-half will be allowed for the actual time worked.

Sunday and holiday work will be required only when absolutely essential to the continuous operation of the railroad.

Sec. 12. Overtime will be paid on the actual minute basis at pro rata rate for the ninth and tenth hours of continuous service, exclusive of meal period, and thereafter at a rate of time and one-half. Employees will not be required to work more than 10 hours without being permitted to take a second meal period. Time taken for meals will not terminate the continuous service period.

New Rule

Sec. 11. Work performed on Sundays and the following legal holidays—namely, New Year's Day, Washington's Birthday, Decoration Day, Fourth of July, Labor Day, Thanksgiving Day, and Christmas (provided when any of the above holidays fall on Sunday, the day observed by the State, Nation, or by proclamation shall be considered the holiday), shall be paid at the rate of time and one-half, except that employees necessary to the continuous operation of the carrier and who are regularly assigned to such service will be assigned one regular day off duty in seven, Sunday if possible, and if required to work on such regularly assigned seventh day off duty will be paid at the rate of time and one-half time; when such assigned day off duty is not Sunday, work on Sunday will be paid for at straight-time rate.

This rule does not apply to employees covered by section 4 of Article V.

Sec. 12. Overtime hours, continuous with regular working hours, shall be computed on the actual minute basis at the rate of time and one-half. Employees will not be required to work more than 10 hours without being permitted to have a second meal period. Time taken for meals will not terminate the continuous service period.

Old Rule—Rates of Pay—New Rule

Sec. 4. An employee assigned to the maintenance of a section who does not return to home station daily and employees regularly assigned to perform road work may be paid on a monthly basis. Such employees shall be paid not less than the minimum hourly rate established for the corresponding class of employees coming under the provisions of this schedule on the basis of 365 eight-hour days per calendar year. The monthly salary is arrived at by dividing the total earnings of 2,920 hours by 12; no overtime is allowed for time worked in excess of 8 hours per day; on the other hand, no time is to be deducted unless the employee lays off of his own accord.

The regularly assigned road men under the provisions of this rule may be used, when at home point, to perform shop work in connection with the work of their regular assignments.

Where meals and lodging are not furnished by the carrier or when the service requirements make the purchase of meals and lodging necessary while away from home point, employees will be paid necessary expenses.

If it is found that this rule does not produce adequate compensation for certain of these positions by reason of the occupants thereof being required to work excessive hours, the salary for these positions may be taken up for adjustment.

Sec. 4. An employee assigned to the maintenance of a section who does not return to home station daily and employees regularly assigned to perform road work may be paid on a monthly basis. Such employees shall be paid not less than the minimum hourly rate established for the corresponding class of employees coming under the provisions of this schedule on the basis of 365 eight-hour days per calendar year. The monthly salary is arrived at by dividing the total earnings of 2,920 hours by 12; no overtime is allowed for time worked in excess of 8 hours per day; on the other hand, no time is to be deducted unless the employee lays off of his own accord.

The regularly assigned road men under the provision of this rule may be used, when at home point, to perform shop work in connection with the work of their regular assignments.

Where meals and lodgings are not furnished by the carrier or when the service requirements make the purchase of meals and lodging necessary while away from home point, employees will be paid necessary expenses.

If it is found that this rule does not produce adequate compensation for certain of these positions by reason of the occupants thereof being required to work excessive hours, the salary for these positions may be taken up for adjustment.

Where practicable, the employees who come under this section should be allowed one day off in seven without deduction in pay therefor, Sunday if possible.

Section 16 of Article II, providing for a minimum allowance of three hours at pro rata rates for regularly assigned service of four hours or less on Sundays or holidays, was eliminated.

Employees Demands for Wage Increases Denied

Regarding wages the Board's decision said:

(a) The Railroad Labor Board in Decision No. 1074 established what at that time it considered to be just and reasonable wages for the classes of employees involved in this dispute. The Board has given careful consideration to the evidence, has carefully analyzed the available data regarding the cost of living, the scale of wages paid for similar kinds of work in other industries and the other elements contained in Title III of the Transportation Act, and finds that the changes in said elements are not sufficient to justify any changes in the wages of the classes of employees for which rates of pay were established on June 10, 1922, by Decision No. 1074. The Board, therefore, decides that the present wages are just and reasonable and the request of the employees for increase in rates of pay is denied.

(b) In presenting their case, the employees contended that there was an unjust inequality in the rates of signal maintainers on some carriers as compared with others, certain employees on a few car-

riers receiving 68 cents per hour instead of the established minimum rate of 72 cents. The Board finds that a large majority of the signal maintainers are now receiving 72 cents per hour and decides that this inequality shall be removed by increasing to 72 cents per hour the rate of signal maintainers who are now being paid 68 cents.

Although A. O. Wharton, a member of the labor group on the Board, did not vote for or against this decision, he did file a dissenting opinion protesting against that part of the decision denying the employees' request for a wage increase. Mr. Wharton contended that the changes which have taken place in the scale of wages paid for similar kinds of work in other industries and in the relation between wages and the cost of living, justify a wage increase for signal department employees, particularly in view of the fact that a slight wage increase has been given to maintenance of way employees, and furthermore, in view of the fact that agreements have been made between the carriers and their train engine and yard service employees, maintaining the rates of pay in effect July 1, 1921.

A. S. C. E. Report on Electric Traction

SEVERAL SOCIETIES and associations have special committees considering various phases of the electrification of steam railroads. The American Society of Civil Engineers' committee expects to confer with such committees and, in due time, will probably establish some contacts. So far, this has not been attempted, pending a decision as to the extent to which the A. S. C. E. committee should attempt to investigate this subject, especially since it appears that other similar committees are generally confining their investigations largely to the more technical phases of this problem.

An abstract follows of the progress report on electrification of steam railroads presented by a special committee at the annual meeting of the American Society of Civil Engineers, January 17, 1923.

The broad question of the electrification of steam railroads in the opinion of the committee is not primarily, or even largely, a question of the choice of a particular system or type of electrification; but, on the contrary, and especially at this time, is more largely dependent on financial and economic conditions; that if these conditions, in any case, justify the cost of electrification, little or no difficulty would be had in the selection of the system or type of electrification which would reasonably meet the requirements.

Doubtless, there are cases which would result in benefits alike to the public and to the railroads. That this applies, in general terms, to any large number of localities or railroads is probably not true. Public interest in electrification is mostly confined to large urban districts, in the expectation that a material reduction of smoke and noise would result. Although it is true that there would be some advantages in these regards, it is possible that the results would be comparatively small in view of the many sources of smoke and noise other than railroads. There are doubtless situations, principally in large terminals and in thickly populated urban districts, where electrification may be very desirable, perhaps even necessary, and where the question of the economies resulting from the change may have to be made a secondary consideration. Such situations are in a class by themselves and must have consideration independently of the larger and broader problem of the electrification of railroads over considerable distances, in order that they may be made more efficient and economical transportation agencies. The electrification of railroads by operating divisions becomes, therefore, a somewhat different and more important problem than the greater number of electrifications thus far made in the United States.

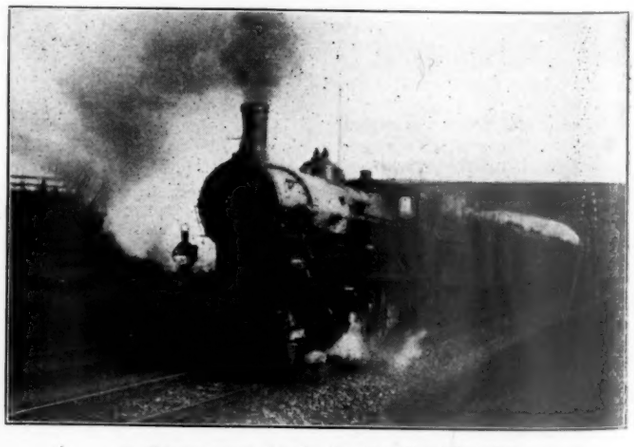
Where Economies are Effected

The economies which are usually effected by electrification do not often enter into the whole range of transportation costs, but are confined largely to the cost of power and its applications, and those items of transportation cost which are affected by a change in form of motive power and changes in operating conditions made possible thereby. One of the conditions affecting the quantity and cost of power is the volume of traffic. If this conclusion is correct, the electrification of steam railroads, where undertaken primarily as a means of increasing efficiency and economy, can be expected first on those roads, or parts of such roads, where the volume of traffic is large, or, where the volume of traffic in connection with ruling gradients calls for large expenditures of power. It also appears probable that a further condition necessary to economy would be that the change from steam to electric power should be made effective over continuous stretches of railroad of considerable length.

To change a railroad from steam to electric operation requires not only a large expenditure of new capital, but also the abandonment and retirement of many existing facilities. Under conditions such as have existed during the last few years, and still exist, the additional capital for electrification would be difficult to arrange for and, in the case of many railroads, would be impossible. The wiping out of existing investments by retirements, although largely a matter of accounting, presents a practical difficulty of no small magnitude. As a practical matter, therefore, the electrification of steam railroads may be expected to be effected only on a showing of substantial benefits which would result in lowering transportation costs and leave the railroads a return somewhat more than sufficient to justify the increased financial burdens which the change would involve.

If made to include one or more operating divisions, electrification would most likely also include the urban terminals where the public benefits arising from it would be enjoyed. On the contrary, the electrification of large terminals only, brought about solely by local conditions, would not extend the benefits of electrification for the public beyond that immediate locality, and might prove to be an added burden rather than an economy for the railroad.

The preceding statements are presented as generalities and indicate some of the phases of the subject to which the committee will give careful consideration. The report is signed by C. F. Loweth, chairman; Bion J. Arnold, George Gibbs, George W. Kittredge, E. J. Pearson, Samuel Rea and Robert Ridgway.

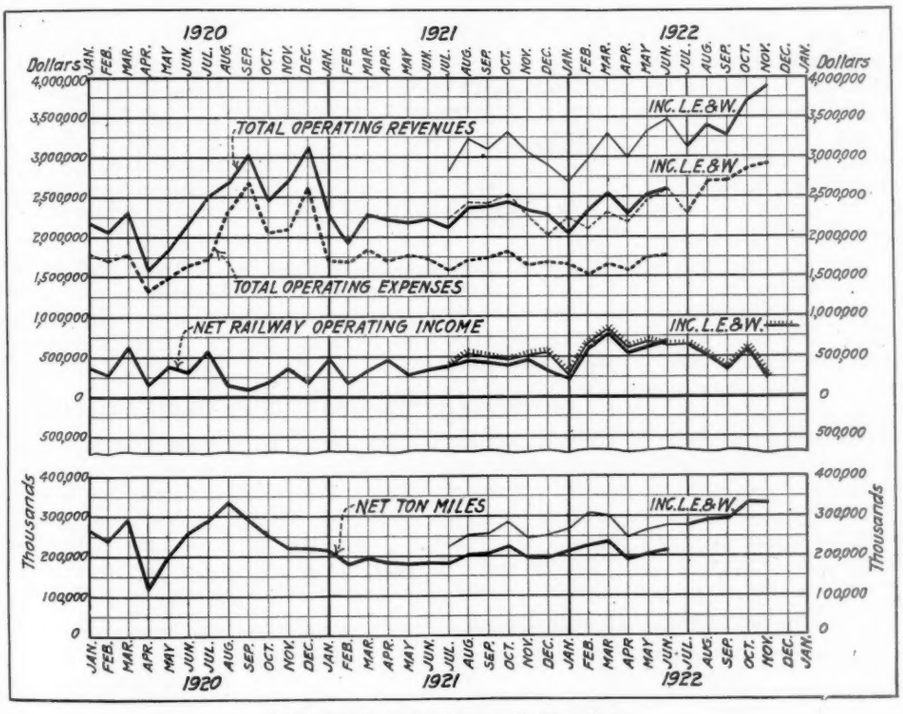


A Passenger Train in Czecho-Slovakia

Nickel Plate Averages 44.1 Miles Per Car Per Day

Nucleus of Van Sweringen System Characterized by Efficient Operation and Expanding Earning Power

THE NEW YORK, CHICAGO & ST. LOUIS is very much in the public eye these days because of its being the nucleus of the Van Sweringen railway system which is about to be nearly tripled in size by the acquisition of a working control of the Chesapeake & Ohio and its subsidiary, the Hocking Valley. The Nickel Plate has been in the hands of the Van Sweringens since 1916. Its mileage is only 574, but its operating methods and results have been such that it should be well able to serve as the parent—if one may use such a term—of a system which will total, with the Lake Erie & Western, the Toledo, St. Louis & Western and now the Chesapeake & Ohio and Hocking Valley, 4,565 miles, and stand the scrutiny which will attend its new importance.



Nickel Plate Traffic and Earnings

At the hearings in Washington a week ago Monday on the application of the two Van Sweringens and other directors of the Nickel Plate for authorization to hold positions also as directors of the Chesapeake & Ohio, possibly the most important point brought out was the assistance which the Nickel Plate would offer to the C. & O. as an outlet supplying prompt and efficient service for C. & O. coal moving to the north and west. More or less as an aside, attention was drawn to the fact that the Nickel Plate's average of miles per car per day is nearly double that of the other railroads of the country. This information was given to indicate the kind of movement that shippers of coal on the Chesapeake & Ohio could expect for their traffic once it reached the Nickel Plate rails bound east or west at Fostoria, Ohio, which President Bernet pointed out to be the expected important point of interchange between the two lines.

While shippers and the public generally may not recognize it in terms of the average miles per car per day, the rapidity with which traffic is moved is unquestionably the most important single distinguishing feature of Nickel Plate operations. The Nickel Plate averaged for the entire year 1920 an average miles per car per day of 43.2; in 1921 it increased this average to 49.4. In the first six months of 1922 the figure had become 55.3. Since July 1 the Nickel Plate statistics have been combined with those of the Lake Erie & Western because of the operation of the two properties as one unit. The high average maintained by the Nickel Plate alone has not been secured by the combined property but it is a matter of no slight importance that for the ten months ended October 31, 1922, the Nickel Plate figure inclusive of the Lake Erie & Western was 44.1, which was about double the average of 22.8 for all the roads in the Great Lakes region, more than double the figure of 19.6 for the Eastern district as a whole, and nearly but not quite double the figure of 22.9 for the entire country. It has been suggested that the Nickel Plate's high figure was due primarily to the fact that it was all main line mileage and that there did not have to be averaged out any branch line operation. This, of course, has been a factor of great assistance. The maintenance of a high daily car mileage even after the inclusion of the Lake Erie & Western with its lines of less traffic density and with its considerable mileage of branches shows, however, that the high figure of car miles per day must have been due also to unusually efficient methods of operation.

There is reproduced in this article a chart on which have been plotted the monthly averages of car miles per day for the period from January, 1920, to November, 1922, which is the latest figure at present available. The chart is a rather striking one, particularly because of the very few months in which the average has fallen below 45 and because there are shown several months in which the figure was over 55, in one of which, October, 1921, it was 62.4, which is nothing else than remarkable. The reduction due to the inclusion of the Lake Erie & Western operations is shown for the period since July, 1922, comparable averages for which are shown for 1921. It will be noted that even with the Lake Erie & Western operations included the points are still above the 40-line.

Another feature of particular interest in connection with Nickel Plate operations is its high traffic density. In 1920, which was one of the best years in the company's history, the road handled 5,750,034 revenue ton-miles per mile of line which is, it is believed, the highest figure to be reported by any railroad of comparable importance in the country and worthy of particular notice because of the fact that the Nickel Plate does not handle any extremely large proportion

of coal which, because of its heavy loading, would have a tendency to bring up the traffic density figure.

This puts in the form of statistics certain details which are quite familiar to carriers connecting with the Nickel Plate or to shippers who have occasion to use Nickel Plate service. Among eastern shippers at least the Nickel Plate has an extremely enviable position on account of the reputation it bears for its efficient handling of fast freight and its apparent ability to handle almost any volume of business that may be turned over to it by connections.

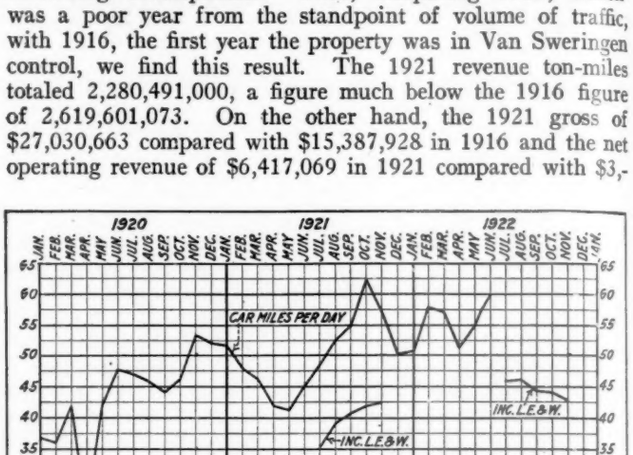
A Single Track Line With High Traffic Density

The Nickel Plate's main line extends from Buffalo to Chicago, 574 miles. This is mostly single track although between Buffalo and Brocton, 46 miles, there is an operating agreement with the Pennsylvania whereby the Pennsylvania line is used as a second track. Between Dunkirk, N. Y., and the Indiana-Illinois state line there is also 76 miles of double track. The Nickel Plate specializes more or less on fast freight traffic east and west which it receives and delivers to connections, notably at Buffalo.

The recent expansion of the Van Sweringen system to include the Lake Erie & Western and the Toledo, St. Louis & Western has put the Nickel Plate in a better position to solicit additional traffic. Its improved position as concerns business between the east and St. Louis via Continental, Ohio, and the Clover Leaf is especially noteworthy. The Lake Erie & Western line from Fostoria to Peoria should eventually prove of similar assistance in connection with business destined for the west via the carriers west of the Mississippi river which connect with the L. E. & W. at Peoria.

The Nickel Plate is not favored with anything particularly noteworthy in the way of facilities of various sorts. It is the general impression that its unusually favorable operating results have been secured in spite of, rather than because of, the character of its physical plant.

The Van Sweringens acquired the Nickel Plate in July, 1916. In 1916, the first year in which the Nickel Plate was operated under Van Sweringen control, the road had a marked expansion in its traffic and its earnings as compared with 1915 and preceding years. The freight traffic density in 1915, for instance, was 4,002,374, the highest figure up to that time. In 1916 it was 5,109,136. The lowest year interesting developments. Thus, comparing 1921, which was a poor year from the standpoint of volume of traffic, with 1916, the first year the property was in Van Sweringen control, we find this result. The 1921 revenue ton-miles totaled 2,280,491,000, a figure much below the 1916 figure of 2,619,601,073. On the other hand, the 1921 gross of $27,030,663 compared with $15,387,928 in 1916 and the net operating revenue of $6,417,069 in 1921 compared with $3,-



The Nickel Plate's High Mileage Per Car Per Day Is the Leading Feature of its Operations

915,942 in 1916. The 1921 net was the largest in the company's history.

Increasing Proportion of High Grade Freight

The Nickel Plate carries but little passenger business. Its freight traffic is rather diversified although one noticeable feature in this connection is the relatively large proportion of manufacturers. In 1920, for example, of a total revenue tonnage of 11,784,011, manufactured products constituted 3,923,688 tons. In seeking the reason for the much larger increase in gross as compared to the increase in traffic, one

NEW YORK, CHICAGO & ST. LOUIS OPERATING STATISTICS, 1912-1922

Year	Total operating revenue	Total operating expenses	Net operating revenue	Net corporate income	Revenue tons	Revenue ton miles	Ton miles per mile of line	Average haul	Revenue per ton per mile, cents	Revenue train load	Revenue car load
1912	$12,226,238	$8,699,108	$3,527,129	$1,880,860	9,727,910	2,046,244,889	3,912,365	210	0.502	367	18
1913	12,393,873	9,734,835	2,659,038	926,705	9,428,163	2,016,811,507	3,856,089	214	0.514	372	18
1914	11,294,971	9,312,653	1,982,318	Def. 183,881	8,055,263	1,815,514,890	3,471,215	225	0.514	329	17
1915	11,413,775	9,063,046	2,350,729	908,970	9,482,092	2,093,321,750	4,002,374	221	0.513	355	..
1916	15,387,928	11,471,986	3,915,942	1,655,988	10,831,772	2,619,601,073	5,109,136	242	0.510	435	20
1917	16,901,206	13,281,309	3,619,897	949,681	10,621,662	2,615,524,344	5,206,276	246	0.563	507	21
1918	22,656,381	17,520,774	5,135,607	1,014,890[1]	11,737,992	2,963,730,553	5,179,988	252	0.679	686	25
1919	23,478,763	18,397,611	5,081,152	2,012,163[1]	10,068,193	2,550,674,300	4,440,975	253	0.820	771	24
1920	28,655,764	23,287,188	5,368,576	2,498,635[1]	11,784,011	2,933,782,630	5,750,034	249	0.900	684	23
1921	27,030,663	20,613,594	6,417,069	3,169,072[1]	9,084,576	2,280,491,000	4,469,622	251	1.097	579	20
1922	35,723,635[2]	27,466,756	8,256,879	.....	.....	.....	.....	...	.....	...	..

[1]Allocating the final settlement with the United States Railroad Administration to the applicable periods.
[2]Eleven months; including Lake Erie & Western.

since was 1919—4,440,975—much above, it will be noted, the 1915 figure. Gross earnings in 1915 were $11,413,775; in 1913 they had been $12,393,873, making that the last year prior to Van Sweringen control. In 1916 they were $15,-387,928 and they have steadily increased since, the 1921 total being $27,030,663.

In the six years taken by themselves during which the Van Sweringens have owned the property, there has not been any particularly marked expansion in traffic. There has, however, as already indicated, been a marked increase in earnings both gross and net. These details are given in a table in this article. The figures show some extremely notes that in 1916 the Nickel Plate received an average revenue per ton per mile of 0.510 cents, whereas in 1921 this had become 1.097 cents. This reflects the various increases in freight rates which have taken place in the past few years, but it also represents more than that. This is an increase of 115 per cent, whereas the average increase on all the railroads in the eastern district in 1921 as compared with 1916 was about 92 per cent. The indication would be that the Nickel Plate traffic has included an increasing proportion of the higher grade freight—the sort that would be attracted by a road specializing more or less on fast freight and offering prompt and efficient service.

The Nickel Plate's increase in earning power is equally evident if a comparison is made on the basis of net railway operating income. The road was among the select few that made money for the government during the period of federal control. The property's standard return—figured on the basis of the annual average net operating income for the three years ended June 30, 1917, was $2,218,857. In 1918 the net railway operating income was $3,893,167; in 1919, when for most roads the opposite was true, this was increased to $4,048,631. In 1920, operating for two months under federal control (the Nickel Plate did not accept the guaranty) the property earned $3,627,868 and in 1921, even with its greatly reduced traffic, it earned $4,428,098.

All Stock Issues on 5 Per Cent Basis

As a result of this happy situation the company has been able to put its three classes of stock—first preferred; second preferred and common—on a 5 per cent basis. The 5 per cent rate on the first preferred dates back to 1899. This dividend was passed in 1914 and again in 1919 but extra dividends of 5 per cent each were paid from surplus in 1920 and 1921 to make up this deficiency. The 5 per cent rate on the second preferred was established in 1907. No dividends were paid in 1914, 1915 and 1916, 5 per cent in 1917, and only 2½ per cent in 1918 and 1919. Total payments of 7½ per cent in 1920 and of 12½ per cent in 1921, carry the record back on the 5 per cent basis to 1915. The common received 15 per cent in 1921, thus carrying the 5 per cent rate back to 1919. The company has outstanding $5,000,000 first preferred, $11,000,000 second preferred and $14,000,000 common. This makes the dividend requirements on the first preferred $250,000; on the second preferred, $550,000, and on the common, $700,000, a total of $1,500,000. In 1921 the company's corporate net was $4,322,705. The amount paid from income for dividends totaled, to be exact, $1,499,365. There was also $98,190 appropriated for the retirement of first mortgage bonds, leaving an income balance of $2,725,149. The various other dividend disbursements in 1921 were made from surplus and amounted to $1,774,360. The profit and loss account as of December 31, 1921, had a credit balance of $5,321,757.

The Lake Erie & Western

Since July 1 the Nickel Plate has been operating the Lake Erie & Western, and the earnings statements and statistics now cover the two lines with a total mileage of 1,225. The Lake Erie & Western's own mileage totaled 715. This road has a main line from Sandusky, Ohio, to Peoria, Ill.; another from Indianapolis, Ind., to Michigan City, and a third from Fort Wayne, Ind., to Connersville. The mileage is practically all single track. The road is, on the whole, a property inferior to the Nickel Plate, although in view of what has thus far been said about the Nickel Plate, that is nothing against it. Its value to the Nickel Plate is first the route offered to Peoria—the two lines connect at Fostoria, Ohio—and second, the manner in which it rounds out the Nickel Plate and offers to it access to a very prosperous industrial area. The company in 1920 handled 7,000,496 tons of revenue freight as compared with the Nickel Plate's 11,784,011. Its average haul was 153 miles as compared with Nickel Plate's 249 and the revenue ton-miles totaled 1,072,868,436, slightly more than one-third the Nickel Plate's total. The Lake Erie & Western's traffic density of 1,441,640 was about one-fourth the Nickel Plate's figure of 5,750,034.

The Lake Erie & Western's traffic, like the Nickel Plate's is diversified. It similarly has a large proportion of manufactured products; an outstanding difference, however, is its larger proportion of coal tonnage. The operating results have not shown that it has the same favorable conditions as its new parent company. The revenue train load in 1920 was 623; the Nickel Plate's, 684. The L. E. & W. miles per car per day were only 23.3 as contrasted with the Nickel Plate's 43.2. With its heavy traffic in 1920 the Lake Erie & Western had a net railway operating deficit of $67,150. In 1921 it had a net operating income of $197,251. Standard return and guaranty compensated for the 1920 deficit so that in that year there was a corporate surplus of $389,729. The 1921 earnings did not meet fixed charges; the corporate income account showed a deficit of $588,304. It is hardly fair to regard 1920 or 1921 as typical years. It is to be expected that Nickel Plate methods of operation will permit its subsidiary to make money. It will be seen, however, that the earning power of the Lake Erie & Western is by no means on a par with that of the parent company.

In 1922, to bring all these details up to date, the Nickel Plate continued to show its usual excellent performance and to give further evidence of its earning capacity. The details are shown in this article, in chart form and, to make the record complete, the curves have been carried back of July 1, 1922, to include Lake Erie & Western operations. The striking feature of the chart is the comparatively small effect on Nickel Plate results of either the coal or the shopmen's strike. The curves show some effect from both, it is true, as will be noted in the drop in the curve showing gross income in April as reflecting the effect of the former and the rise in the curve showing operating expenses in recent months somewhat out of proportion to the increase in traffic, as reflecting the effect of the shop strike. It is the testimony of shippers that the Nickel Plate has maintained the excellence of its service in rather better degree than many of its connections or neighbors.

Net Maintained

The chart shows net railway operating income to have been maintained at favorable figures throughout the year, except for one poor month, November, in which presumably temporary conditions are reflected. For the eleven months ended November 30, the combined Nickel Plate and Lake Erie & Western operated at a ratio of 76.9. For the period it reported a net railway operating income of $5,909,050, which compared with $4,087,282 for the first eleven months of 1921. The company has handled a considerably larger business this year than last as is shown by the gradual rise in the curve showing net ton-miles and in the fact that the gross for the first eleven months this year was $35,723,635 as compared with $33,184,393 last year. The Nickel Plate's location and traffic are such that it should reflect promptly the results of business revival and it is evident from the figures that such has proved to be the case.

Equipment condition at the present time is fair. The percentage of locomotives held for repairs requiring over 24 hours on January 1 was 21.2 and there were 10 serviceable locomotives stored. On December 15 the percentage of bad order cars was 6.6.

THE CINCINNATI, INDIANAPOLIS & WESTERN is listed as one of the railroads "settling with the strikers under the terms of the Willard-Jewell agreements," in the review of railway developments which appeared in the annual statistical number of the *Railway Age*, January 7, page 39. Its inclusion in this list was unfortunately due to a confusion between that road and the Chicago, Indianapolis & Louisville which should have been in the list instead of the former road.

An agreement between the Cincinnati, Indianapolis & Western and the "Association of Employees of the Mechanical Department" became effective on October 1, 1922, and under this contract the shops of this road are now being operated. At no time has it contemplated making any settlement with the Railway Employees' Department of the American Federation of Labor.

The Savage Impact Register on the Baltimore & Ohio

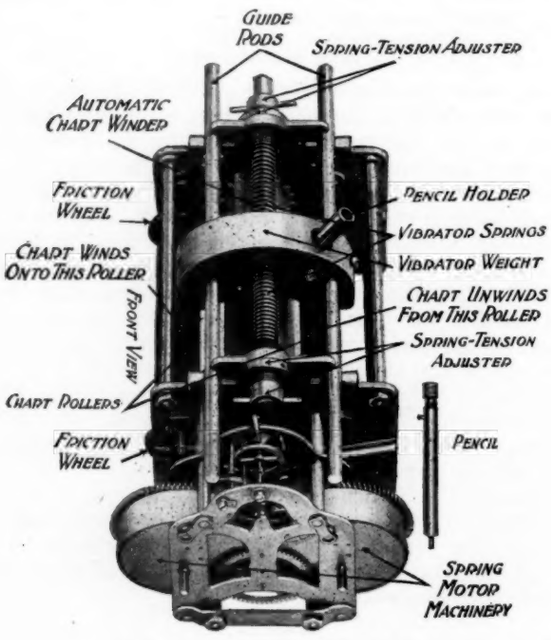
THE BALTIMORE & OHIO has now in use a number of the registering machines, made by the Savage Impact Register Company, 59 East Madison street, Chicago, for recording the behavior of a freight car—or rather of the men who handle the car—throughout a trip, with a view to locating the responsibility for any damage that may be done to the contents of the car because of rough handling; and the results of the tests made have been in such degree satisfactory that the road has bought the machines.

The impact register is a clockwork mechanism, running ten days, which records the exact time of occurrence and the force of the impact caused by any rough movement of a car.

The mechanism propels a chart from a feeder roller to a receiving roller, passing over a third roller, above which a pencil, held by a movable weight, is suspended, the point of the pencil resting on the chart. The weight is kept in position by two springs, one on each side.

The box containing the machine is 14 in. by 7 in. by 6 in. It is set in a car, and cleated to the floor, in such position that when the car sustains a shock the pencil responds, moving to one side of the center line of the chart a distance dependent upon the intensity of the shock; and it then rebounds, coming to rest again on the center line of the chart. The chart is graduated into periods of 24 hours and each hour is divided into 15-minute periods.

When a register is placed in a car the loading agent sets



The Savage Impact Register

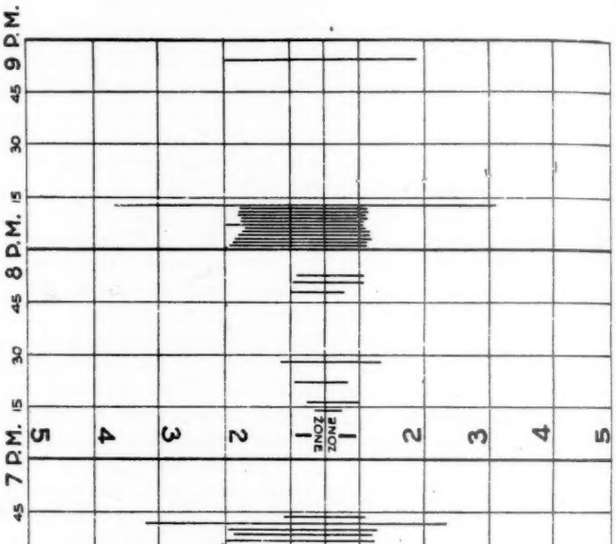
the chart so that the time shown thereon agrees with his watch, and then enters on the chart this time, and the date. With this record the exact time and date of each impact can be ascertained.

Lines marked lengthwise on the chart furnish a gage for indicating the force of the impact in estimated miles per hour. Thus the record shows the force of impact, the date and the hour of its occurrence.

At the end of the run, the agent at destination station opens the box, cuts off the chart and sends it to the general office; he then resets the register for the return trip. The car number and date of starting being already recorded, the receiving agent enters on the chart the date and the hour taken from the car.

After the chart is received at the general office the car service department furnishes a running record of the car showing its arrival and departure at all yards. With proper comparisons, it is then possible to locate the point, either in yards or on the road, where any severe impact occurred. The receiving agent also sends to the general office a copy of all damage reports on freight damaged in cars containing registers.

The information thus received is tabulated, and the original chart, with the running records and damage reports, is sent to the superintendents of divisions on which the charts



Record of Shocks Sustained by a Freight Car (Car 503,736, C., M. & St. P., January 28)

indicate that rough handling occurred. The superintendent, with this information, is not only able to locate the crews responsible for the rough handling but also to show them the exact result of what they have done.

The registers are being used in general freight service between freight stations at a number of points. Some of the more important runs, covering all divisions and through all important yards, are:

New York to Brunswick	Brunswick to St. Louis
Baltimore to Chicago	Brunswick to Fairmont
Baltimore to Pittsburgh	Brunswick to Columbus
Baltimore to St. Louis	Pittsburgh to Cincinnati
Brunswick to Chicago	Willard to Toledo
Brunswick to Cincinnati	Willard to Lima

These runs vary in length from 260 to 840 miles.

In addition certain machines are used in large yards to be placed in set-back cars, and some machines are assigned for use in cars containing freight particularly susceptible to damage.

The diagram shown is a copy of an actual record made in a recent test, car No. 503,736. It will be noted that there was a pronounced shock at about 8:55 p. m.; another one at 6:42 p. m. and the worst one in this diagram at 8:15 p. m.

Some of these registers are in use on the Pennsylvania, the New York Central, the New York, New Haven & Hartford, the Grand Trunk, the Atlantic Coast Line, the Union Pacific, the International-Great Northern, the Illinois Central and the San Antonio & Aransas Pass.

Commission Orders Reduced Rate Scrip Books

$90 Non-Transferable Book, Good for 2,500 Miles, to Be Sold for $72

WASHINGTON, D. C.

THE Interstate Commerce Commission on January 31 made public an order requiring a list of 185 roads, which corresponds closely to the list of Class I carriers, to put into effect on March 15 a non-transferable interchangeable scrip coupon ticket in the denomination of $90, to be sold at a reduction of 20 per cent from the face value of the ticket, or $72. This would be good for approximately 2,500 miles of travel. The tickets will be good within one year from the date of sale on all passenger trains operated by the 185 roads. All other carriers are exempted and certain branch lines of the roads are also exempted. The commission indicates that this order is to remain in force for an experimental period and the carriers and other parties interested are expected to keep a record of the results with a view to bringing the matter to the commission's further consideration on or about January 1, 1924.

The order is dated as having been decided by the commission on January 26, or two days after the publication of a news photograph showing Senator Watson and A. M. Loeb, president of the National Council of Traveling Salesmen's Associations, reading what the caption said was an order of the commission effecting a 20 per cent reduction on 2,500 mile mileage books, but which a statement issued by Chairman Meyer of the commission indicated was apparently a copy of his proposed report in the case. The report is by Commissioner Meyer, but there are dissenting reports by Commissioners Hall, Potter, Daniels and Eastman. The majority report is based on the assumption that the law apparently requires the sale of such a ticket at something less than the standard fare and that travel will be stimulated thereby. The conclusion of the commission is as follows:

The amendment to the act pursuant to which this proceeding was instituted does not upon its face indicate upon what basis an interchangeable mileage or scrip ticket should be issued. The spirit and the apparent theory of the law is that carriers shall be required to sell such a ticket at something less than the standard fare, which would be just and reasonable because it would be sold in such quantities as to stimulate travel, and thereby increase net revenue or at least offset any loss in revenue that might result from the reduction, in which event carriers would render greater service to the public. It is a well-recognized rule in trade and commerce that, other things being equal, as the price of an article is lowered the sales increase. And the fact that for many years prior to federal control carriers voluntarily sold mileage books at discounts ranging from 10 to 33⅓ per cent is not without significance. That commutation and excursion fares create traffic is conceded by carriers. That some additional traffic would be created by scrip ticket at reduced fares may fairly be assumed, although it is impossible to determine how much. Many unused coupons would not be redeemed while others which remained in the book near the end of the year or season would undoubtedly be used for passenger travel that would not otherwise occur. A scrip ticket at reduced fares could not be justified solely upon the theory that the cost per passenger-mile might thereby be reduced, although it is apparent that anything that will tend to cause a fuller utilization of passenger-train facilities without overcrowding will also tend to reduce the average cost per passenger-mile.

If carriers are to be required to issue a mileage or scrip coupon ticket at a reduced fare it must be mainly upon the assumption that travel will be stimulated thereby. The question whether the mileage or scrip coupon ticket at reduced fare will stimulate travel sufficiently to increase or to equalize any loss in revenue that might result must remain in the realm of speculation until and unless such a ticket is established and experience recorded. The evidence neither proves the affirmative nor the negative of the question whether the mileage book used in the past stimulated travel and whether reductions in fares increased the number of revenue passenger-miles. The evidence as to the use of the mileage book is too indefinite to be helpful, or to afford a guide in determining for the future the question whether a scrip ticket at a reasonable fare below the standard fare would increase or decrease carriers' revenues. The testimony of merchants, manufacturers, and commercial travelers is to the effect that an interchangeable mileage ticket at reduced fares would result in a greater number of salesmen being put on the road. And, of course, the use of such a ticket would not be restricted to commercial travelers and business men. It would be open to all. In addition to the obvious spirit of the law, the record warrants the view that a coupon ticket at a reasonably reduced fare should be established, at least for an experimental period. In no other way can the apparent purpose of the law be given practical effect.

We find and conclude that on and after March 15, 1923, carriers by rail, respondents herein, enumerated in Appendix C, shall establish, issue, and maintain, at such offices as we may hereafter designate, a nontransferable interchangeable scrip coupon ticket in the denomination of $90, which shall be sold at a reduction of 20 per cent from the face value of the ticket. We further find that the rates resulting from that reduction will be just and reasonable for this class of travel. This scrip coupon ticket shall be good, within one year from the date of its sale, for carriage of passengers on all passenger trains operated by said respondents, except that in the case of special or extra-fare trains its use will be subject to the payment by the passenger of the special or extra fare.

By request of the parties and for the purpose of affording them an opportunity to confer we will defer action on the rules and regulations which shall govern the issuance of the scrip ticket for 30 days from the service of this report. Before the expiration of that period the parties will be expected to submit to us the result of their efforts to agree upon a set of rules and regulations. Upon receipt of this advice we will enter an appropriate order.

More than 400 carriers filed applications for exemption prior to the hearing although comparatively few appeared for the purpose of introducing evidence. The applications include a few Class I carriers. But in the main the applications are from Class II and Class III carriers, electric carriers, and switching and terminal carriers. No evidence was introduced in opposition to these applications.

The applications of Class I carriers are based chiefly upon the objection to interchangeable scrip or mileage coupon ticket at any rate below the standard fare. The principal reasons assigned for exemption by the short lines, the electric, and the switching and terminal carriers are that they are engaged chiefly in intrastate commerce, that their passenger traffic is negligible, that they do not honor or sell passenger tickets to and from points on other lines, that they have no passenger-train service, and that there will be little or no demand of them for interchangeable scrip or mileage tickets. We are of the opinion that the particular circumstances shown to us warrant the exemption of all carriers by rail which are not included in Appendix C.

In addition to the above, we further conclude that certain branches and parts of the lines of carriers hereinafter described shall also be exempted from the provisions of the amendatory act: The main line west of Roanoke, Va., and all branch lines in West Virginia of the Virginian Railway Company; the Key West extension south of Homestead, Fla., of the Florida East Coast Railway Company; the Orchard Beach branch extending from Old Orchard to Camp Ellis, Me., a distance of 3.8 miles, the branch from Fayban to Base Mount Washington, N. H., a distance of 6.7 miles, and the Bethlehem branch, extending from Bethlehem Junction to Bethlehem, N. H., a distance of 3.4 miles, of the Boston & Maine Railroad Company; the Okolona branch of the Southern Railway Company operated by the Mobile & Ohio. The Okolona branch is located entirely within the State of Mississippi and connects with the Mobile & Ohio at Okolona and with the Gulf, Mobile & Northern at Houston, Miss. It does not connect with the Southern Railway. Its rails extend from Okolona to Calhoun City, a distance of 37.7 miles.

If any of the carriers exempted should hereafter desire to establish, issue, and maintain nontransferable interchangeable scrip coupon tickets under the conditions hereinbefore prescribed, our finding of exemption will not preclude them from doing so.

The interchangeable mileage ticket investigation was instituted by the commission on its own motion, pursuant to the amendment of Section 22 of the interstate commerce act approved August 18, 1922. The respondents had reserved such rights as they might have to question the validity of

the act or of any action the commission might take thereunder, but the report says the commission has repeatedly said that it is the duty of the commission to apply a statute as it finds it and that it is for the courts to determine the validity of the statute where that question arises. The report points out that practically all parties at the hearing expressed preference for an interchangeable scrip coupon book over a mileage book and says that every convenience or advantage inherent in a mileage ticket appears to be more completely and satisfactorily met by the scrip coupon ticket. In discussing the question of the rate to be established in compliance with the law directing the commission to require a mileage or scrip ticket "at just and reasonable rates" the report points out that the operating ratios of Class I roads for 1920 and 1921 indicate that passenger service is not producing an undue proportion of revenue. In 1921 the operating ratio for freight service was 81.79 and for passenger service 85.24. It is also shown that the net railway operating income for the Class I railroads of the United States for the first seven months of 1922 was only 4.36 per cent. The evidence indicates, the report says, that mileage tickets were primarily issued by the railroads, not for the purpose of stimulating travel, but as a means of inducing shippers to route freight over particular railroads. They were issued at fares lower than the standard for the convenience of and as a concession to shippers at a time when concessions were common. The demand for mileage or coupon ticket comes chiefly from organizations of commercial travelers, supported to some extent by shippers who employ commercial travelers and by a national hotel association. They had attempted to justify the reduced rate for such conditions on the ground that it would stimulate travel and that existing rates of fare had caused a falling off in the number of commercial salesmen on the road. The report says the record does not support the statement that the falling off in revenue passenger miles during 1921 and the first six months of 1922 was due chiefly to the high level of passenger fares and reference is made to its finding in the 1922 reduced rate case that the decrease was the result of many contributing causes which included business depression, the increased use of motor vehicles, the improvement of highways and the high level of passenger fares. It is stated that the passenger fare was undoubtedly a contributing cause, but that it is contrary to the evidence to say that it was the only or even the chief cause. It is also pointed out that the removal on January 1, 1922, of the war tax of 8 per cent on passenger fares did not measurably stimulate passenger travel during the succeeding six months. The carriers admitted that a reduction of fares more substantial than their revenues could stand might stimulate travel to some extent, but urged that there is no ground for the conclusion that such stimulus would be sufficient to offset the loss of revenues which, in their judgment, would result from such a reduction. They feared that the interchangeable ticket would be used by passengers who would otherwise pay the standard fares.

Dissenting Opinions

Commissioner Hall in a dissenting report signed also by Commissioner Potter, says that the order sets up a "preferred class" of travelers, those who have $72 in money available with which to buy $90 in scrip, and enables those with $72 in hand to "exchange it in effect for a cheaper money" which may be used in payment for carriage in passenger trains. He points out that the commission has already found the 3.6 basic standard fare to be just and reasonable and that it has not been shown nor was there any attempt to show that this basic fare is not still just and reasonable. He also pointed out that the requirements of the report are confined to the Class I roads and says that the exemption of three or four times as many other carriers is not made because of "particular circumstances" shown. Mr. Hall says that the statute was one of nine bills introduced in Congress, all specifying a definite rate of reduction and, he says, since this requirement was omitted from the bill before it became a law, the fair construction of the act is that Congress expected the commission to determine in this case, as in any other, what the just and reasonable rate would be. If that rate is the standard rate, he says, and "to my mind, nothing in the record shows that any lower rate would be just and reasonable, we should prescribe that rate and give our reasons in the report."

Commissioner Daniels thinks it difficult to escape the conclusion that the intent of the law was to require a lower rate than the basic fare, but that the utmost which the commission would be justified in considering experimentally is 10 per cent from the basic fare. This, he says, would avoid the creation of a preferred class, necessarily limited to a small per cent of the total number using passenger service, and would have the advantage of appealing to a much more numerous constituency of railway patrons whereby to increase the use of passenger service. He says this so-called new class of passenger travel fails to have such distinguishing marks as constitute distinct characteristics in the case of commutation, convention, excursion and tourist travel. Commissioner Daniels also points out that to offset the estimated loss of $60,000,000 resulting from this reduction in rates will apparently require an additional gross passenger revenue of $300,000,000 annually if a passenger operating ratio of 80 per cent be assumed. "Is it credible," he asks, "that the newly created class of travelers will expend anything like that sum over and above what they would spend for travel without any discount?"

Commissioner Eastman does not agree that the law requires a rate less than the standard fare and says he is not ready to believe that Congress wished the commission to imply something which it was unwilling to say openly. He fears that the action taken in this case will postpone the date of a reduction in fares for the benefit of all travelers.

Simplification of Containers

MANUFACTURERS, consumers and users of wooden, glass and fibre containers held a meeting at Washington on January 16 and 17 in an effort to bring about a simplification of sizes and styles of containers which will lead to elimination of waste and reductions of cost to the public. The conference was held under the auspices of the Simplified Practice Division of the Department of Commerce. Its programme of co-operation was later discussed with Secretary of Commerce Hoover.

E. G. McCullough, of the Chamber of Commerce of the United States, made it clear that the Chamber of Commerce was interested merely in simplification of containers to the extent that waste would be avoided and that the cost to the consumer of products would be kept at the lowest level.

F. S. Gallagher, engineer of rolling stock of the New York Central, discussed carriers' problems in relation to containers, and described the New York Central container car system. F. W. Morey, of the National Wholesale Grocers' Association, said that the wide variety of containers used in packing of grocery products was working toward inefficiency and high cost of operation in the wholesale branch. William A. Durgin, chief of the Simplified Practice Division of the Department of Commerce, presided at the conference.

Mr. Gallagher said in part:

"The subject of shipping containers is very large when viewed from various angles, and if the simplifying and standardizing of a container for one class of shipment were all that had to be considered, this would be very simple, but shipping containers must necessarily cover a larger scope

than for one commodity to be a universal success, and must be suitable for packaging nearly any kind of goods.

"We talk about standardization. That is a subject that a railroad man hears morning, noon and night. I think it will not be as difficult to standardize containers, but we cannot expect, with one stroke of the pen, to decide on a container which would be standard for all times. If we do, we retard progress. It is practically impossible to design a container which would be suitable for the shipment of all commodities as they are offered today to the carriers for transportation. I do feel, however, that a container can be so constructed that it will be servicable and suitable for the several classes or kinds of material which are offered to the carriers for transportation, and yet show great economies in labor, and, if you please, material.

"Shipping containers—I am referring to the packing boxes—are used to some extent in this country, but most of those that have been brought to my attention are either too complicated, too heavy, or require too much attention to make their use universal, and are usually made suitable for one class of freight only, and all going in the same direction, without proper facilities for their return. This is, of course, a one-way shipment, and the containers would have to be returned empty, because usually there would be no freight going back to the shipper.

"A container clearing house organization might be perfected, but its operation under present conditions would probably cost more than the containers are worth. However, I believe that a simplified form of containers, and the handling of containers could be easily worked out by having the containers made all of one size, interchangeable, and under the control of some parent company whose object it would be, in addition to paying dividends, to serve the public by providing containers in suitable quantities and localities that are suitable and handled in a manner that would invite their use by the shippers. This will require an educational campaign among the shippers to get them away from the idea that goods must be boxed or crated before they can be shipped. Expensive boxes or crates will not be required when containers are used.

"The simplest form of a container would be one that would be strong enough to be handled and be of proper dimensions to transport economically, and built so that the goods contained therein would be properly protected from the elements. The introduction of containers of this kind will benefit the shipper and the carrier, but to be a success will require the co-operation of the shippers. The shippers' part in this would be to utilize to the maximum the use of the container and minimize the number of small individual packages shipped separately.

"Take for example one actual shipment weighing 6,241 pounds, shipped from New York to Buffalo, all to the same consignee. This is a lot shipment consisting of some seventy separate packages. In order to transfer this 6,241 pounds of freight from New York to Buffalo, it had to be handled by man power 13 times, from the time it left the packing room of the shipper until it reached the warehouse of the consignee, and in addition to this common labor, the making and handling of the records necessary for this shipment required a lot of clerical work. If the labor of handling less-than-carload freight and the number of records can be reduced, something has been accomplished and the simplest form of a container for shipment of freight, mail, express or liquids, would be one that will accomplish the reduction and prevent loss and damage.

"The handling of a package of freight 13 times by man-power is a general condition and is not confined to any particular shipment. Now a container for the handling of less-that-carload freight, which can be transported over the highways, delivered to and placed in the shipping room of the shipper where the goods are handled only once, and where expensive packages and packing would be eliminated, except just enough supports to prevent the contents in the container from damaging themselves, and which can be delivered right into the receiving room of the consignee, is, I believe, about the simplest form of a container, because it eliminates labor and expense, gets the goods from the shipper to the consignee in less time, with less handling, and with more safety than shipping the individual package, regardless of how strongly it is boxed.

"United States mail has been handled over the New York Central railroad between New York and Chicago the past year by the container system. The steel containers are delivered to the despatching platform, are lifted from the motor truck, placed on a carriage and drawn by electric tractor to the position desired, where they are loaded and the doors closed and locked. Overhead cranes have not yet been installed at Chicago and the containers are trucked to the post office and mail unloaded while the container is on the truck. When cranes are installed, the containers will be carried right into the post office at Chicago. This will be true also of freight or express shipments; the containers will be carried into the warehouse and unloaded, and if there is a return shipment, not necessarily to the original shipper, but to any other shipper in any direction, the same container can be loaded and despatched the same as a carload shipment coming into a factory where there is a carload shipment to be sent out; the same car, if suitable, is usually reloaded. By crane the containers all may be removed from the car and placed upon motor trucks in from seven to ten minutes.

"The steel containers give the shippers of less-than-carload lots all the advantages of the carload shipment and additional benefits, through carrying shipments under utmost protection against pilferage or damage from the door of the sender to the door of the receiver. The containers are huge steel boxes, 7 feet wide, 9 feet long and 8 feet high, and fit sectionally upon the car structure, the doors being behind the low side walls of the car, which absolutely prevent their being opened in transit. They are hoisted between motortruck and car by means of a crane, thus quickly releasing the rolling stock and also preventing congestion of trucks at terminals.

"The container system of handling less-than-carload freight is too young in years to furnish definite or concrete figures as to costs, but the economies and safety effected through this method of handling less-than-carload freight is apparent. If we have a carload of less-than-carload freight weighing 20,000 pounds which must be handled 13 times, this means a man-power lifting of 260,000 pounds. By the container system two handlings are all that are necessary by man-power, one in to the container and one out of the container. By the container system, instead of having to handle a 20,000-pound load of less-than-carload freight 13 times, it is handled twice only, effecting a saving in the lifting by man-power of 220,000 pounds, or 110 tons. This economy should not be lost sight of because it is a labor saved and when the shipper begins to use the container, it will be a saving of material because the expensive packing boxes and crates can be eliminated and the containers loaded with the original packages with the minimum of supports.

"The handling of the container is done by cranes. The accomplishment of a means for loading or unloading a car of less-than-carload freight within a few minutes alone carries far-reaching benefits when we take into consideration the demands on the railroad equipment of the country during the peak-load of business. During a period when there is a shortage of cars, the quick unloading of a freight car is a benefit to all concerned because it releases rolling stock quickly.

"When we first started to carry freight by rail, and for a considerable time thereafter, industrial track facilities into factories were not provided, but instead freight was hauled

between the railroads and the factories by teams. Then somebody conceived the idea that if they had a railroad track running into their plant, they could handle their freight cheaper and with less delay. Today the first thought a manufacturer gives to the building of a new factory is railroad facilities. Now, it would seem that shippers of less-than-carload freight, and the consignees, knowing the advantage of the container system of handling this class of freight, would give consideration to the handling of containers by providing necessary means for loading and unloading the containers to and from trucks at their warehouse. The shipper and consignee then will have the advantage of full carload shipments for less-than-carload freight.

"The simplest form of container is one that can be used by numerous shippers, and I believe the container being used by the New York Central is one that can be used by a large number of shippers of less-than-carload freight. In addition to less-than-carload freight, express and mail, there are other commodities handled by the railroads where the container should play an important part. This concerns the handling of liquids, especially milk, fruit juices, edible oils, acids, etc., than can be handled in bulk and also where the temperature is an important factor.

"On the New York Central, we are experimenting now with a container for handling milk. These are glass-lined tanks encased in an insulated container, making it unnecessary to provide ice in the carrying of the milk to keep it cool. The milk containers hold 825 gallons, or equal to 82 1/5 of the regulation ten-gallon milk cans. These containers may be unloaded from the car and placed on auto trucks in from a minute to a minute and a half. To transfer the same amount of milk between the truck and the railway car in the standard ten-gallon cans would require more than one hour of manual labor. The cleaning of one of the 825-gallon containers could be accomplished in about five or six minutes, while it would require fully an hour to clean eighty-two cans, to carry the same amount of milk. Platforms requiring extensive space for handling cans of milk could be done away with. This would greatly facilitate the handling of milk at milk stations because more milk could be handled in the same time and in less space, and with fewer cars.

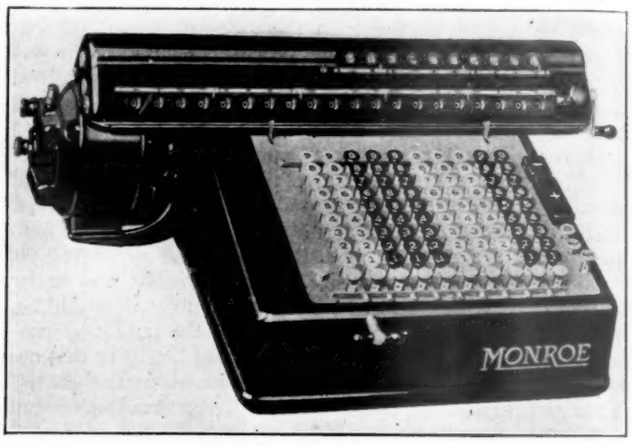
"The consumption of milk in large cities has had a steady increase, and it is a railroad problem to supply facilities for handling milk, and as long as the ten-gallon cans are used, each can must be handled individually, but any of the big milk shippers could utilize the container tank service and lessen the handling at shipping and receiving points. These tanks could be made of any capacity, 600, 800, 1,000, 1,500 gallons or more, depending entirely on the capacity of the truck and the load limit of the highways.

"An important feature of the container system is its adaptability to water transportation. Let us take, for example, a shipment of silk from China, which is one of the most valuable of commodities, having a destination in New York. There is no reason why the container system could not be extended to a shipment of this kind, it being loaded in contents not touched. Such interchange with foreign coun- China, placed in a boat, transferred to San Francisco, and by rail to New York with the container unopened and the tries is a possibility in the future."

THE CANADIAN PACIFIC offers to utilize its widespread organization to provide the farmers of Western Canada with help from a number of countries. It will receive and arrange to fill applications for male and female farm help to be supplied from Great Britain, Belgium, Holland, Denmark, Switzerland and Norway, in all of which countries the company has representatives who have farmed in and are familiar with western Canadian conditions and who are now in touch with such men and women ready and anxious to come to Canada.

Portable Automatic Model Calculating Machine

ELECTRICALLY OPERATED and designed to be used on either a desk or stand, the new portable automatic calculating machine illustrated has been brought out recently by the Monroe Calculating Machine Company, New York. Besides being rugged and built to stand up under long hard usage this new addition to the line of Monroe calculating machines is simpler to operate than previous models. There is no crank to turn; as the operator faces the machine, everything is in readiness. The keys can be depressed, carriage shifted or dials cleared, because the handle is always in the proper location to permit these operations to be performed. There are locks but these can be disregarded because the machine automatically takes care of them. It is possible to perform every calculation on this automatic that



Speed, Accuracy and Ease of Handling are Features of this Machine

can be performed on a hand machine and its portability is an important advantage.

The machine is quiet, smooth running and makes calculations in a fraction of a second. The light compact motor is located at the left of the machine under the overhang of the carriage. There are two operating bars at the right of the keyboard. To add, simply touch the plus bar; to subtract, touch the minus bar. The flexible keyboard with its automatic register and control and with an instantaneous dial clear-out, make this an extremely speedy machine. The machine also divides and multiplies automatically, giving accurate answers and relieving the operator of worry and effort. A trained operator is not necessary.

Should the live current be shut off for any reason, the Monroe Automatic can be used as a hand-operated machine by the ready insertion of the operating crank. An ingenious mechanical control prevents locking or damage to the machine as well as safeguarding it against abuse. Monroe Automatics are furnished in two sizes; 20 place and 16 place, for either direct or alternating current.

THE FREIGHT AND PASSENGER DEPARTMENTS of the Atchison, Topeka & Santa Fe will be located in new headquarters at Denver, Colo., after April 1. The new offices will occupy part of the ground floor of the Kenmark building and will be equipped throughout with new office fixtures. Besides the Santa Fe, the Denver & Rio Grande Western and the Chicago, Rock Island & Pacific, will also withdraw from the Consolidated Ticket Office on April 1, and will be located in the Patterson building. The Union Pacific will also establish separate offices.

General News Department

In the federal court at Buffalo, N. Y., the New York, Chicago & St. Louis has been fined $5,000 for violations of the "28-hour law" which requires the feeding, watering and resting of animals in transit.

Governor J. C. Walton, of Oklahoma, has recommended to the State Legislature that Oklahoma follow the lead of Texas in seeking to rehabilitate the Kansas City, Mexico & Orient in accordance with the plans for state ownership, proposed by Lieutenant-Governor Davidson, of Texas.

J. L. Campbell, chief engineer of the El Paso & Southwestern, has been selected by the engineering section of the American Railway Association to fill the vacancy on the joint committee on automatic train control, caused by the resignation of F. Ringer, chief engineer of the Missouri, Kansas & Texas.

Sir Henry Thornton, president of the Canadian National, speaking before the Board of Trade at Winnipeg on January 30, stated that railway rates should be fixed so as to enable Canadian producers to compete with their products in the world's market, but at the same time to allow reasonable earnings for the government-owned railways. He stated further that the directorate of the National railways would strive for efficiency and economy with ultimate success assured, if those in charge are allowed the same freedom of action accorded to officers of private enterprises. He emphasized also the necessity of developing Canada's natural resources and immigration as a means of restoring the railways to a paying basis.

Division VI—Purchases and Stores to Meet on May 15-17

Division VI—Purchases and Stores—of the American Railway Association will hold its annual meeting in Chicago on May 15, 16 and 17, 1923. Headquarters will be at the Hotel Sherman.

New York Railroad Club to Discuss Personnel Problems

At the monthly meeting of the New York Railroad Club to be held at the Engineering Societies' Building, 29 West Thirty-ninth street, New York, at 8 p. m. on February 16, E. K. Hall, vice-president of personnel and public relations of the American Telephone & Telegraph Company, will speak on the subject of improving relations between employers and employees.

New A. R. A. Directors

The directors of the American Railway Association, chosen at the recent election, for terms expiring in November, 1925, are E. W. Beatty (C. P. R.), A. H. Smith (N. Y. C.), Daniel Willard (B. & O.), H. E. Byram (C. M. & St. P.), Howard Elliott (N. P.), B. F. Bush (M. P.) and C. H. Markham (I. C.) Two members elected to the Committee on Nominations are P. E. Crowley (N. Y. C.) and W. J. Jackson (C. & E. I.) The terms of these two expire in November, 1924.

Sabotage on the New Haven

Twenty locomotives were disabled in one day, last Autumn, during the shopmen's strike on the New York, New Haven & Hartford, by the presence of emery in the lubricating oil, placed there, no doubt, by strikers or their friends. This fact came out in a hearing before the Connecticut legislature on Wednesday last, when General Manager C. L. Bardo testified to numerous facts concerning sabotage which had been reported to the officers of the road by loyal employees. Nuts had been maliciously loosened on driving rods. Mr. Bardo expects train service to be normal within four months.

E. L. Hamilton Retires

E. L. Hamilton, senior secretary in the Transportation Department of the Young Men's Christian Association, retired on February 1, after serving for 36 years, exclusively in the Railroad or Transportation Department of that work. He was in local railroad fields for six years, after which he entered the service of the Railroad Department of the International Committee. As international railroad secretary he served in various parts of the country with great efficiency until in 1920 he became senior secretary related to the administration of the Railroad Young Men's Christian Association throughout the entire transportation field. During his long service Mr. Hamilton was instrumental in the organization of many Railroad Young Men's Christian Associations and had an active part in making possible many of the fine buildings in which this organization operates on the various railway systems of North America. Railroad officials and railroad employees, alike, hold him in high esteem, both for his fine unselfish character and because of the wide range of useful gifts of heart and mind that made his work for railroad men so highly effective.

Consolidation Hearings to Be Resumed

Hearings in the consolidation proceeding will be resumed before Commissioner Hall and Examiner Healy at Washington on February 26. The following respondents tentatively included in systems 13 and 17 were unable to present evidence during the hearing on these systems in January:

System No. 13—Union Pacific-North Western:
- Union Pacific—
  - St. Joseph & Grand Island.
  - Oregon Short Line.
  - Oregon-Washington Railroad & Navigation Company.
  - Los Angeles & Salt Lake.
  - Wabash lines west of the Mississippi River.

System No. 17—Southern Pacific-Rock Island:
- Southern Pacific Company.
- Arizona & New Mexico.
- El Paso & Southwestern.
- Chicago, Peoria & St. Louis.

These respondents are expected to present their main affirmative cases on February 26.

Evidence will also be received with respect to respondents which, under the tentative plan, should be considered in connection with the following proposed systems as there outlined, or in connection with such alternative systems as may be proposed:

System No. 18—Frisco-Katy-Cotton Belt:
- St. Louis-San Francisco.
- St. Louis Southwestern.
- Louisiana Railway & Navigation.
- Chicago & Alton.
- Missouri, Kansas & Texas.
- Trinity & Brazos Valley.
- San Antonio, Uvalde & Gulf.

System No. 19—Chicago-Missouri Pacific:
- Chicago & Eastern Illinois.
- Missouri Pacific.
- Kansas City Southern.
- Kansas City, Mexico & Orient.
- Kansas, Oklahoma & Gulf.
- Texas & Pacific.
- Fort Smith & Western.
- Louisiana & Arkansas
- Gulf Coast Lines.
- International & Great Northern.

In order that the commission may prepare a schedule of western hearings with respect to systems 13 and 19, inclusive, respondents, state commissions, and others desiring to appear at the western hearings are requested promptly to advise the secretary, giving an estimate of the amount of time that they will require, the names of witnesses whom it is desired to cross-examine, etc.

Respondents named in systems Nos. 1 to 9, inclusive, should be prepared to make their main affirmative cases at Washington upon

short notice at any time after April, 1923. Evidence from respondents not named in these systems and which should be considered in connection therewith, will be received at the same time.

Wage Statistics for November

The total number of employees reported by Class I railroads for the month of November, 1922, exceeds the number reported for any month since the new classification became effective in July, 1921, according to the Interstate Commerce Commission's monthly statistical bulletin. Compared with the returns for October, 1922, the total number of employees shows an increase of 16,148 or 0.9 per cent. The compensation, however, shows a decrease of $6,227,287 or 2.4 per cent. This decrease in compensation is explained by the fact that November had only 25 working days while October had 26, and also that there was a considerable reduction in the amount paid for overtime in November, as compared with the returns for the preceding month.

In the maintenance of equipment group, the employment was greater in November, 1922, than in any other month reported under the new classification. This increase in employment is undoubtedly due to the efforts of the carriers to clear up the repair work that accumulated during the shopmen's strike. The overtime payments, while less than those reported for October, continue abnormally heavy, being 14.54 per cent of the total compensation for this group.

Reports from 183 roads, employing 99 per cent of the total number of employees of Class I roads, indicate that, during the month, the employees received $1,099,203 in addition to amounts previously reported for loyal service performed during the strike, which amount is not included in this summary.

Compared with the previous month, the increase or decrease (D) in the number of employees, by groups, was as follows:

Executives, officials and staff assistants	61
Professional, clerical and general	D 4,072
Maintenance of way and structures	D 27,260
Maintenance of equipment and stores	37,827
Transportation (other than train, engine and yard)	69
Transportation (yardmasters, switch tenders and hostlers)	442
Transportation (train and engine service)	9,081
Net increase	16,148

A comparison of the number of employees and their compensation, by months, follows:

Month	Number of employees	Total compensation
November, 1921[1]	1,732,353	$225,304,006
December, 1921[1]	1,637,151	214,921,396
January, 1922[1]	1,552,014	205,178,639
February, 1922[1]	1,545,040	194,523,427
March, 1922[1]	1,570,158	216,704,408
April, 1922	1,578,133	203,413,071
May, 1922	1,628,228	216,672,028
June, 1922	1,685,414	222,932,689
July, 1922	1,467,824	193,571,244
August, 1922	1,594,074	224,976,644
September, 1922	1,708,591	238,735,394
October, 1922	1,804,315	255,514,000
November, 1922	1,820,463	249,286,713

[1]Excludes Detroit, Toledo & Ironton Railroad.

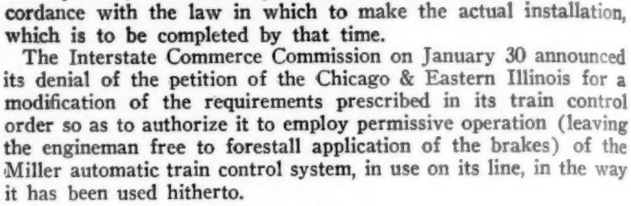
Co-operation of I. C. C. and Train Control Committee Terminated

The Interstate Commerce Commission has directed that the co-operation of its Bureau of Safety with the Joint Committee on Automatic Train Control of the American Railway Association in the investigation and tests of automatic train control apparatus be terminated. This information was conveyed in a letter from W. P. Borland, chief of the Bureau of Safety, to President Aishton of the American Railway Association, stating that "the period provided for intensive tests having expired on January 1, 1923, and the carriers now being required by the commission's order to 'proceed without unnecessary delay to select and install the devices as specified' it does not appear that any material advantage can result from the further close co-operation of the bureau with the A. R. A. Joint Committee on Automatic Train Control" and that the commission has therefore directed that this portion of the work be concluded. It was further stated that field work in progress in connection with the joint tests would be discontinued on January 31 and that the records and reports would be completed as early as practicable. The letter pointed out that the period between the date of the train control order of June 13, 1922, directed to 49 roads, and January 1, 1923, was expressly for such tests as the carriers desired to make preparatory to making their selection and that the two-year period from January 1, 1923, to January 1, 1925, was provided in accordance with the law in which to make the actual installation, which is to be completed by that time.

The Interstate Commerce Commission on January 30 announced its denial of the petition of the Chicago & Eastern Illinois for a modification of the requirements prescribed in its train control order so as to authorize it to employ permissive operation (leaving the engineman free to forestall application of the brakes) of the Miller automatic train control system, in use on its line, in the way it has been used hitherto.

A Northern Pacific Cake

A large cake, which was the exact copy of the Northern Pacific's new station and office building at Glendive, Mont., was exhibited at the celebration of the opening and dedication of that structure on December 20. The cake was made under the direction of Ralph K. Owen, superintendent of the dining car supply department and was baked and decorated by Fred Kaul, master



Northern Pacific Station Duplicated in the Form of a Cake

baker. A replica, of proportionate size, of the North Coast Limited stood on the track alongside the miniature station. The cake was 6 ft. long and 2½ ft. wide and weighed 200 lb. The construction of the cake required six weeks' work in the commissary department in Seattle. It was presented to J. M. Rapalje, vice-president of the road.

To Develop Constructive National Railroad Policy

At a meeting in New York on January 27, Julius H. Barnes, president of the Chamber of Commerce of the United States, was called upon to name a committee to study the railway transportation problem and to adopt and recommend a constructive national policy.

Among those in attendance at the meeting were Herbert Hoover, Secretary of Commerce, who attended in an unofficial capacity; Samuel Rea, president of the Pennsylvania; Daniel Willard, president of the Baltimore & Ohio; A. H. Smith, president of the New York Central; C. H. Markham, president of the Illinois Central; W. B. Storey, president of the Atchison, Topeka & Santa Fe.; Carl R. Gray, president of the Union Pacific; Hale Halden, president of the Chicago, Burlington & Quincy; and Howard Elliott, chairman of the board of the Northern Pacific; George A. Post, chairman of the railroad committee of the Chamber of Commerce of the United States; Julius H. Barnes, president of the Chamber, and others representing the automotive and shipping industries. In summarizing the discussion at the meeting, Mr. Barnes said:

"Business men feel there must be developed a national treatment of railroads which will protect a proper public interest and will also restore investing confidence by which the means for expanding facilities can be provided, and there must be restored in railroad management a field which will attract a grade of business ability which its importance requires.

"Regulation of railroad rates is here to stay, but government regulation should be fair and generous in the public interest. Government ownership and government operation in countries in Europe, and even in our neighbor, Canada, have written too clear a trail of losses and of restricted commerce for America to contemplate any such solution. American national pride is quickened by any comparison of American railroad operation as against results of state-owned operation anywhere. However, railway executives recognize the desirability of studying possible improvements in service to the public and the necessity of presenting the actual facts about transportation to the public through some means free from the color of self interest."

The following resolutions were adopted at the meeting:

"Whereas, It is apparent that a comprehensive study of the

whole question of national transportation participated in by the railways, shipping interests, producers, the motor industry, waterway operators and the public, and with the co-operation of governmental representatives, should be undertaken at once to assure adequate transportation of our ever expanding domestic and foreign commerce;

"Whereas, A co-ordinated national transportation policy requires consideration of these chief phases; governmental relations to transportation; possible railroad consolidations; possible readjustment of relative freight rate schedules; proper co-ordination of motor transport and use of highways and proper co-ordination of waterway service;

"Whereas, In order to avoid duplication of investigation and direction, it is desirable to utilize present sources of information and experience through a central source and in such manner as to carry public confidence and conviction on its conclusions.

"Therefore, Resolved that it is the sense of this meeting that the president of the Chamber of Commerce of the United States is hereby requested to form a general committee for the purpose of suitable consideration and action, of the various interests represented, from the Chamber itself and from any other helpful bodies, and including some proper form of contact with the Department of Commerce, the Interstate Commerce Commission and any other agencies of government and that such a general committee be convened at the call of the president of the Chamber to work through sub-committees or otherwise for the purpose of study and investigations and resultant reports and recommendations upon these or any other phases of nationwide transportation development."

Quarterly Accident Report

The Interstate Commerce Commission has issued a summary of its quarterly record of railroad accidents for July, August and September, 1922. In collisions, derailments and other train accidents, 56 passengers, 57 employees and 19 other persons were killed and 1,338 passengers, 467 employees and 109 other persons were injured; as compared with totals in the same quarter of the preceding year of 10 passengers, 50 employees and 23 other persons killed and 851 passengers, 334 employees and 115 other persons injured.

Adding to these the casualties in "train service" accidents we have for the quarter a total of 1,659 persons killed and 13,465 injured, as compared with totals in 1921 of 1,679 killed and 11,666 injured.

Non-train accidents, not included in the foregoing, totaled 146 persons killed, as compared with 119 in the same quarter of 1921 (an increase of 22.7 per cent) and 20,611 persons injured as compared with 20,997.

The more prominent train accidents in the quarter under review were the following:

July 2—Winslow Junction, N. J.
July 12—Leeds, Mo.
July 19—Alsuma, Okla.
July 22—Logan, Mo.
August 1—Lester, Ohio.
August 5—Sulphur Springs, Mo.
August 6—Elwood City, Pa.
August 12—Annandale, Minn.
September 7—Parkwater, Wash.
September 13—Houston, Tex.

The collision at Sulphur Springs was reported in the *Railway Age* of August 12, page 289, and November 18, page 938; several others were reported in the issue of September 9, page 454. The report of the Bureau of Safety on its investigations conducted in connection with the train accidents of this quarter was noticed in the *Railway Age* of December 30, page 1239.

Other features of this accident record are noticed in the editorial columns of this issue.

Meetings and Conventions

The following list gives names of secretaries, dates of next or regular meetings and places of meetings:

AIR BRAKE ASSOCIATION.—F. M. Nellis, 165 Broadway, New York City. Next convention, May 1-4, 1923, Hotel Albany, Denver, Colo. Exhibit by Air Brake Appliance Association.

AIR BRAKE APPLIANCE ASSOCIATION.—J. F. Gettrust, The Ashton Valve Company, 318 Washington St., Chicago. Meeting with Air Brake Association.

AMERICAN ASSOCIATION OF DINING CAR SUPERINTENDENTS.—L. A. Stone, C. & E. I. Ry., Chicago.

AMERICAN ASSOCIATION OF ENGINEERS.—C. E. Drayer, 63 E. Adams St., Chicago. Next convention, May 7-9, 1923, Norfolk, Va.

AMERICAN ASSOCIATION OF GENERAL BAGGAGE AGENTS.—E. L. Duncan, 332 So. Michigan Ave., Chicago. Next meeting, May 9, 1923, Signal Mt. Inn, Chattanooga, Tenn.

AMERICAN ASSOCIATION OF PASSENGER TRAFFIC OFFICERS.—W. C. Hope, C. R. R. of N. J., 143 Liberty St., New York.

AMERICAN ASSOCIATION OF RAILROAD SUPERINTENDENTS.—J. Rothschild, Room 400, Union Station, St. Louis, Mo. Next convention, June 13-15, 1923, Kansas City, Mo.

AMERICAN ELECTRIC RAILWAY ASSOCIATION.—J. W. Welsh, 8 W. 40th St., New York. Next meeting, February 16, New Willard Hotel, Washington, D. C.

AMERICAN RAILROAD MASTER TINNERS', COPPERSMITHS' AND PIPE FITTERS' ASSOCIATION.—C. Borcherdt, 202 North Hamlin Ave., Chicago, Ill.

AMERICAN RAILWAY ASSOCIATION.—J. E. Fairbanks, General Secretary, 75 Church St., New York, N. Y.

Division I.—Operating, J. C. Caviston, 30 Vesey St., New York, N. Y.

Freight Station Section (including former activities of American Association of Freight Agents). R. O. Wells, Freight Agent, Illinois Central Railroad, Chicago, Ill.

Medical and Surgical Section. J. C. Caviston, 30 Vesey St., New York, N. Y.

Protective Section (including former activities of the American Railway Chief Special Agents and Chiefs of Police Association). J. C. Caviston, 30 Vesey St., New York, N. Y.

Safety Section.—J. C. Caviston, 30 Vesey St., New York.

Telegraph and Telephone Section (including former activities of the Association of Railway Telegraph Superintendents).—W. A. Fairbanks, 30 Vesey St., New York, N. Y.

Division II.—Transportation (including former activities of the Association of Transportation and Car Accounting officers).—G. W. Covert, 431 South Dearborn St., Chicago, Ill.

Division III.—Traffic, J. Gottschalk, 143 Liberty St., New York.

Division IV.—Engineering, E. H. Fritch, 431 South Dearborn St., Chicago, Ill. Annual meeting, March 13-15, 1923, Chicago. Exhibit by National Railway Appliances Association.

Construction and Maintenance Section. E. H. Fritch.

Electrical Section.—E. H. Fritch.

Signal Section (including former activities of the Railway Signal Association).—H. S. Balliet, 30 Vesey St., New York, N. Y. Annual convention, March 13-15, Drake Hotel, Chicago.

Division V.—Mechanical (including former activities of the Master Car Builders' Association and the American Railway Master Mechanics' Association).—V. R. Hawthorne, 431 South Dearborn St., Chicago, Ill. Annual meeting, beginning June 20, Chicago.

Equipment Painting Section (including former activities of the Master Car and Locomotive Painters' Association).—V. R. Hawthorne, 431 South Dearborn St., Chicago, Ill.

Division VI.—Purchases and Stores (including former activities of the Railway Storekeepers' Association).—W. J. Farrell, 30 Vesey St., New York, N. Y. Annual meeting, May 22-24, 1923, Chicago.

Division VII.—Freight Claims (including former activities of the Freight Claim Association).—Lewis Pilcher, 431 South Dearborn St., Chicago, Ill.

Car Service Division.—C. A. Buch, 718 18th St., N. W., Washington, D. C.

AMERICAN RAILWAY BRIDGE AND BUILDING ASSOCIATION.—C. A. Lichty, C. & N. W. Ry., 319 N. Waller Ave., Chicago. Next convention, October 16-18, 1923, Seattle, Wash. Exhibit by Bridge and Building Supply Men's Association.

AMERICAN RAILWAY DEVELOPMENT ASSOCIATION.—A. Leckie, Industrial Agent, Kansas City Southern Ry., Kansas City, Mo. Annual meeting May 9-11, St. Louis, Mo.

AMERICAN RAILWAY ENGINEERING ASSOCIATION.—(Works in co-operation with the American Railway Association, Division IV.) E. H. Fritch, 431 South Dearborn St., Chicago. Annual meeting, March 13-15, Chicago. Exhibit by National Railway Appliances Association.

AMERICAN RAILWAY MASTER MECHANICS' ASSOCIATION.—(See American Railway Association, Division V.)

AMERICAN RAILWAY TOOL FOREMEN'S ASSOCIATION.—R. D. Fletcher, 1145 East Marquette Road, Chicago. Exhibit by Supply Association of the American Railway Tool Foremen's Association.

AMERICAN SHORT LINE RAILROAD ASSOCIATION.—T. F. Whittelsey, Union Trust Bldg., Washington, D. C. Annual meeting, May 9, Washington, D. C.

AMERICAN SOCIETY FOR STEEL TREATING.—W. H. Eisenman, 4600 Prospect Ave., Cleveland, Ohio. Sectional meeting, February 15 and 16, City Club, Chicago.

AMERICAN SOCIETY FOR TESTING MATERIALS.—C. L. Warwick, 1315 Spruce St., Philadelphia, Pa. Annual meeting, June 25, Chalfonte-Haddon Hall Hotels, Atlantic City, N. J.

AMERICAN SOCIETY OF CIVIL ENGINEERS.—Prof. J. H. Dunlap, University of Iowa, Iowa City, Ia. Regular meeting 1st and 3d Wednesdays in month, except July and August, 33 W. 39th St., New York.

AMERICAN SOCIETY OF MECHANICAL ENGINEERS.—Calvin W. Rice, 29 W. 39th St., New York. Meeting before Eastern New York section, February 23, Edison Hall, Schenectady, N. Y.

Railroad Division—A. E. Stuebing, Managing Editor, Railway Mechanical Engineer, Woolworth Bldg., New York.

AMERICAN TRAIN DISPATCHERS' ASSOCIATION.—C. L. Darling, 1310-1311 Mallers Bldg., Chicago, Ill. Next convention, June 18, 1923, Chicago.

AMERICAN WOOD PRESERVERS' ASSOCIATION.—S. D. Cooper, A. T. & S. Fe R. R., Topeka, Kan. Next convention, 1924, Kansas City, Mo.

ASSOCIATION OF RAILWAY CLAIM AGENTS.—H. D. Morris, Northern Pacific R. R., St. Paul, Minn. Next meeting, May 16-18, 1923, Brown Palace Hotel, Denver, Col.

ASSOCIATION OF RAILWAY ELECTRICAL ENGINEERS.—Jos. A. Andreucetti, C. & N. W., Room 411, C. & N. W. Sta., Chicago. Exhibit by Railway Electrical Supply Manufacturers' Association.

ASSOCIATION OF RAILWAY EXECUTIVES.—Stanley J. Strong, 320 Munsey Bldg., Washington, D. C.

ASSOCIATION OF RAILWAY SUPPLY MEN.—A. W. Clokey, 1658 McCormick Bldg., Chicago. Meeting with International Railway General Foremen's Association.

ASSOCIATION OF RAILWAY TELEGRAPH SUPERINTENDENTS.—(See American Railway Association, Division I.)

ASSOCIATION OF TRANSPORTATION AND CAR ACCOUNTING OFFICERS.—(See American Railway Association, Division II.)

BRIDGE AND BUILDING SUPPLY MEN'S ASSOCIATION.—John Nelson, Joseph E. Nelson & Sons, 3240 South Michigan Ave., Chicago. Meeting with convention of American Railway Bridge and Building Assn.

CANADIAN RAILWAY CLUB.—W. A. Booth, 53 Rushbrook St., Montreal, Que.

CAR FOREMEN'S ASSOCIATION OF CHICAGO.—Aaron Kline, 626 North Pine Ave., Chicago. Regular meetings, 2d Monday in month, except June, July and August, Great Northern Hotel, Chicago.

CAR FOREMEN'S ASSOCIATION OF ST. LOUIS, MO.—Thomas B. Koeneke, 604 Federal Reserve Bank Bldg., St. Louis, Mo. Meetings, first Tuesday in month at the American Hotel Annex, St. Louis.

CENTRAL RAILWAY CLUB.—Harry D. Vought, 26 Cortlandt St., New York. Regular meetings, 2d Thursday in January, March, May, September and November, Hotel Iroquois, Buffalo, N. Y.

CHIEF INTERCHANGE CAR INSPECTORS' AND CAR FOREMEN'S ASSOCIATION.—W. P. Ellicit, Terminal Railroad Association of St. Louis, East St. Louis, Ill.

CHIEF INTERCHANGE CAR INSPECTORS' AND CAR FOREMEN'S SUPPLY MEN'S ASSOCIATION.—D. B. Wright, 34th St. and Artesian Ave., Chicago, Ill. Meeting with Chief Interchange Car Inspectors' and Car Foremen's Association.

CINCINNATI RAILROAD CLUB.—W. C. Cooder, Union Central Bldg., Cincinnati, Ohio. Meetings, 2d Tuesday in February, May, September and November.

EASTERN RAILROAD ASSOCIATION.—E. N. Bessling, 614 F St., N. W., Washington, D. C. Annual meeting May 10, 1923, Railroad Club, New York.

FREIGHT CLAIM ASSOCIATION.—(See American Railway Association, Division VII.)

GENERAL SUPERINTENDENTS' ASSOCIATION OF CHICAGO.—C. H. Treichel, Grand Central Station, Chicago. Regular meetings, Wednesday, preceding 3d Friday in month, Room 1414, Manhattan Bldg., Chicago.

INTERNATIONAL RAILROAD MASTER BLACKSMITHS' ASSOCIATION.—W. J. Mayer, Michigan Central R. R., Detroit, Mich. Exhibit by International Railroad Master Blacksmiths' Supply Men's Association.

INTERNATIONAL RAILROAD MASTER BLACKSMITHS' SUPPLY MEN'S ASSOCIATION. George P. White, 747 Railway Exchange, Chicago. Meeting with International Railroad Master Blacksmiths' Association.

INTERNATIONAL RAILWAY FUEL ASSOCIATION.—J. G. Crawford, 702 E. 51st St., Chicago. Next meeting, May 21-24, 1923, Cleveland, Ohio. Exhibit by International Railway Supply Men's Association.

INTERNATIONAL RAILWAY GENERAL FOREMEN'S ASSOCIATION.—Wm. Hall, 1061 W. Wabash Ave., Winona, Minn.

INTERNATIONAL RAILWAY SUPPLY MEN'S ASSOCIATION.—C. W. Sullivan, Garlock Packing Co., 326 W. Madison St., Chicago. Meeting with International Railway Fuel Association.

MASTER BOILER MAKERS' ASSOCIATION.—Harry D. Vought, 26 Cortlandt St., New York.

MASTER CAR AND LOCOMOTIVE PAINTERS' ASSOCIATION.—(See A. R. A., Division V.)

MASTER CAR BUILDERS' ASSOCIATION.—(See A. R. A., Division V.)

NATIONAL ASSOCIATION OF RAILWAY TIE PRODUCERS.—J. S. Penney, T. J. Moss Tie Company, St. Louis, Mo. Next convention, 1924, Kansas City, Mo.

NATIONAL ASSOCIATION OF RAILWAY AND UTILITIES COMMISSIONERS.—James B. Walker, 49 Lafayette St., New York. Next convention, Dec. 4, 1923, Miami, Fla.

NATIONAL FOREIGN TRADE COUNCIL.—O. K. Davis, 1 Hanover Square, New York. Tenth convention, May 2-4, 1923. New Orleans, La.

NATIONAL RAILWAY APPLIANCES ASSOCIATION.—C. W. Kelly, People's Gas Bldg., Chicago. Annual exhibition at convention of American Railway Engineering Association.

NEW ENGLAND RAILROAD CLUB.—W. E. Cade, Jr., 683 Atlantic Ave., Boston, Mass. Regular meetings, 2d Tuesday in month, excepting June, July, August and September, Copley-Plaza Hotel, Boston, Mass.

NEW YORK RAILROAD CLUB.—Harry D. Vought, 26 Cortlandt St., New York. Regular meetings, 3d Friday in month, except June, July and August, at 29 W. 39th St., New York.

PACIFIC RAILWAY CLUB.—W. S. Wollner, 64 Pine St., San Francisco, Cal. Regular meetings, 2d Thursday in month, alternately in San Francisco and Oakland.

RAILWAY ACCOUNTING OFFICERS' ASSOCIATION.—E. R. Woodson, 1116 Woodward Building, Washington, D. C. Next meeting, May 9, 1923, Richmond, Va.

RAILWAY BUSINESS ASSOCIATION.—Frank W. Noxon, 600 Liberty Bldg., Broad and Chestnut Sts., Philadelphia, Pa.

RAILWAY CLUB OF PITTSBURGH.—J. D. Conway, 515 Grandview Ave., Pittsburgh, Pa. Regular metings, 4th Thursday in month, except June, July and August, Fort Hotel, Pittsburgh, Pa.

RAILWAY DEVELOPMENT ASSOCIATION.—(See Am. Ry. Development Assn.)

RAILWAY ELECTRICAL SUPPLY MANUFACTURERS' ASSOCIATION.—J. Scribner, General Electric Co., Chicago. Annual meeting with Association of Railway Electrical Engineers.

RAILWAY EQUIPMENT MANUFACTURERS' ASSOCIATION.—J. W. Fogg, Boss Nut Company, 1732 N. Kolmar Ave., Chicago. Meeting with Traveling Engineers' Association.

RAILWAY FIRE PROTECTION ASSOCIATION.—R. R. Hackett, Baltimore & Ohio R. R., Baltimore, Md.

RAILWAY REAL ESTATE ASSOCIATION.—R. H. Morrison, C. & O. Ry., Richmond, Va.

RAILWAY SIGNAL ASSOCIATION.—(See A. R. A. Division IV, Signal Section.)

RAILWAY STOREKEEPERS' ASSOCIATION.—(See A. R. A., Division VI.)

RAILWAY SUPPLY MANUFACTURERS' ASSOCIATION.—J. D. Conway, 1841 Oliver Bldg., Pittsburgh, Pa. Meeting with A. R. A., Division V. (No exhibit in 1923.)

RAILWAY TELEGRAPH AND TELEPHONE APPLIANCE ASSOCIATION.—G. A. Nelson, 30 Church St., New York. Meets with Telegraph and Telephone Section of A. R. A., Division I.

RAILWAY TREASURY OFFICERS' ASSOCIATION.—L. W. Cox, Commercial Trust Bldg., Philadelphia, Pa.

ROADMASTERS' AND MAINTENANCE OF WAY ASSOCIATION.—P. J. McAndrews, C. & N. W. Ry., Sterling, Ill. Next convention, September 18-20, 1923, Chicago. Exhibit by Track Supply Association.

ST. LOUIS RAILWAY CLUB.—R. W. Frauenthal, Union Station, St. Louis, Mo. Regular meetings, 2d Friday in month, except June, July and August.

SIGNAL APPLIANCE ASSOCIATION.—F. W. Edmunds, Sunbeam Electric Manufacturing Company, New York City. Meeting with American Railway Association, Signal Section.

SOUTHERN AND SOUTHWESTERN RAILWAY CLUB.—A. J. Merrill, P. O. Box 1205, Atlanta, Ga. Regular meetings, 3d Thursday in January, March, May, July, September and November, Piedmont Hotel, Atlanta.

SOUTHERN ASSOCIATION OF CAR SERVICE OFFICERS.—J. L. Carrier, Car Serv. Agt., Tenn. Cent. Ry., 319 Seventh Ave., North Nashville, Tenn.

SUPPLY ASSOCIATION OF AMERICAN RAILWAY TOOL FOREMEN'S ASSOCIATION.—H. S. White, 9 N. Jefferson St., Chicago.

TRACK SUPPLY ASSOCIATION.—W. C. Kidd, Ramapo-Ajax Corporation, Hillburn, N. Y. Meets with Roadmasters' and Maintenance of Way Association.

TRAVELING ENGINEERS' ASSOCIATION.—W. O. Thompson, 1177 East 98th St., Cleveland, Ohio. Exhibit by Railway Equipment Manufacturers' Association.

WESTERN RAILWAY CLUB.—Bruce V. Crandall, 605 North Michigan Ave., Chicago. Regular meetings, 3d Monday each month, except June, July and August.

Traffic News

Differential Rates via Kansas City, Mexico & Orient

The Interstate Commerce Commission on January 25 issued a special permission authorizing the establishment on one day's notice of reduced rates on all traffic, export, import and domestic, to and from points in southern Texas, over the Kansas City, Mexico & Orient. Because of financial difficulties, the commission has been advised that unless immediate relief is afforded, this railroad which now serves a large territory in western Oklahoma and Texas will be forced to cease operation.

The reduced rates are the result of a succession of conferences between the commission and representatives of the states directly concerned and of railroads in the west and southwest. Almost by unanimous consent, the commission's announcement said, the railroads have agreed to join in an arrangement for differential rates in order to prevent the abandonment of operation of the Orient. The reductions are to apply only on through traffic of which the Orient is an intermediate carrier, and are as follows:

(1) $7.50 per car, regardless of weight, on shipments moving under carload rates.
(2) Three cents per 100 lb. on l. c. l. shipments, except cotton and cotton linters.
(3) Two cents per 100 lb. on shipments of cotton and cotton linters moving at less than carload or any quantity rates.

The reduced rates are scheduled to expire six months after their establishment, with the understanding that they may be modified in the meantime if circumstances indicate necessity therefor. It is expected that agreement will be reached shortly for the establishment of similar differential rates via the Orient on several important commodities between points in California and other states in transcontinental territory on the one hand and points east of the K. C. M. & O. and west of the Indiana-Illinois state line on the other.

Southern Pine Association Freight Tariffs

A carefully prepared, comprehensive and extensive freight tariff, not made by a railroad, is a novelty which has lately been issued by the Southern Pine Association, New Orleans, La. This association of producers of lumber in the Southern States has a large constituency, and its secretary, constantly answering inquiries about freight rates, has found it expedient to put in permanent form the essential facts in regard to rates.

This publication, 5¼ in. by 7½ in., 88 pages, is entitled "Tariff No. 1; Freight Rates on Southern Pine from Points in Arkansas, Louisiana and Texas to (Points in) Texas." This is the third edition, dated December, 1922, and a statement on the title page says that it is to be reissued monthly. All rates quoted are for carloads, in cents per 100 lb. and reference is given to the official tariffs from which they have been copied. Attention is called to the fact that official tariffs are the only legal tariffs and that in using these rates shippers must confirm them by railroad tariffs. The appearance and general tone of the pamphlet, however, give the reader full confidence in the statement that the greatest possible care has been exercised to insure accuracy. Intermediate routing instructions are not covered, but questions in relation to this detail will be answered on request.

A circular which was issued with this first tariff says that in compiling the schedules many maladjustments have been discovered, and that the railroads are now correcting errors which have been found. The association will discontinue its former practice of furnishing railroad tariffs to its members.

An obvious merit of this tariff for the lumber shipper is that it deals only with one commodity and only with localities where a tariff for this one commodity is needed. Tariff No. 2 shows rates from points in Alabama, Arkansas, Louisiana, Mississippi and Texas to points in Colorado, Iowa, Kansas, Minnesota, Missouri, Nebraska, Oklahoma and South Dakota.

Tariff No. 3 shows rates from Alabama, Arkansas, Florida, Georgia, Louisiana, Mississippi and Texas to points in Illinois, Indiana, Maryland, Michigan, New England, New Jersey, New York, Ohio, Ontario, Pennsylvania, Quebec and Wisconsin. Of this tariff the December issue is the first one, and in it the rates are revised up to January 10.

Commission and Court News

Interstate Commerce Commission

Southern Class Rate Investigation

A further hearing in this proceeding will be held on February 19 at Atlanta, Ga., for the purpose of receiving rebuttal testimony by the carriers and for cross-examination with respect to such rebuttal testimony and of Messrs. Harry T. Moore, James T. Ryan and Charles E. Bell, the cross-examination of the latter to be confined to the inter-territorial testimony presented by him at the recent New York hearing. Shippers' witnesses will be cross-examined on February 19, followed by the carriers' rebuttal testimony.

Court News

Consignor's Liability for Freight Charges

Where the carrier permitted the consignee to inspect a shipment, contrary to the express direction of the shippers indorsed on the bill of lading, that did not excuse the shippers from their obligation to pay the freight charges, even though they might be entitled to recover damages for such act.—Southern California Commercial Co. v. Alberti (Cal.), 207 Pac. 1023.

Validity of Contracts by Receiver's Chief Operating Officer

The Circuit Court of Appeals, Eighth Circuit, holds that contracts made by a railroad receiver's chief operating officer, whose duties are substantially those of a railroad's general manager, such as a contract for the transportation of ballasting material, are binding on the receiver, though not approved by him personally.—Oklahoma Belt v. Schaff, 282 Fed. 128.

Limitation of Liability to Loss on Carrier's Own Line

The Pennsylvania Supreme Court, following Oregon-Washington v. McGuin, 42 Sup. Ct. 332, holds that an interstate shipment on a live stock contract in the usual form, which expressly provides that no carrier shall be "liable for loss, damage or injury not occurring on its own road," etc., limits the liability of the terminal carrier, and an instruction that it is liable if the shipper proves negligence anywhere along the line is erroneous.—Karnofsky Bros. v. D. & H. (Pa.), 117 Atl. 783.

Bridge Carpenters' Wages for Trackmen When Assisting at a Wreck

On January 25, 1922, trackmen on the Chicago & North Western at Council Bluffs, Iowa, were required to help remove a locomotive tender from a turntable pit. The brotherhood contended that as these men were employed in assisting in making repairs on the turntable they should be paid mechanics' wages. The railroad contended that assisting the clearing up of wrecks, derailments, etc., has always been considered trackmen's work and that the trackmen did not perform any service other than that generally required of trackmen. The Labor Board sustained this view.—*Decision No.* 1485.

Order for Additional Train Service Held Invalid

The Missouri Supreme Court directed the reversal of an order of the state Public Service Commission requiring the St. Louis-San Francisco to stop two of its intermediate passenger trains at Festus, one reason being that these trains stopped of necessity at Crystal City, which is only one mile from the business section of Festus. The court said that: "Under modern local facilities a distance of a mile or two miles cannot be counted an inconvenience in reaching stations. The order was also held a detriment to interstate traffic, and therefore an unlawful burden. State ex rel. St. L.-S. F. v. Public Service Commission (Mo.), 242 S. W. 938.

Foreign Railway News

Milan Station Destroyed by Fire

The Central Railway Station at Milan, Italy, was almost entirely destroyed by fire on the night of January 30, according to press dispatches from that city. Fifty-five squads of Fascisti militia aided the firemen in their attempt to check the blazes but without success. This station was built in 1864 and is used by all the state railway lines.

Italy Reduces Railway Forces

The Italian State Railways will reduce their forces from 229,000 to 190,000, according to press dispatches from Rome. The impression prevails that the railways are at present overmanned and that they can operate efficiently with fewer employees. It is estimated that this reduction in forces will enable the railways to wipe out their operating deficit during the fiscal year 1923-24.

New Lines for Australia

The states of Victoria and New South Wales, Australia, will, according to the Times (London), extend their state railways in what is known as the border country between the two states. On the Victorian side of the boundary 240 miles of new line will be built. Other lines will bring the total cost of the project up to $4,500,000 and will open up great areas of agricultural lands.

Russian Locomotive Production Increasing

Russia will purchase no more locomotives from foreign countries, according to Berlin correspondence of the Wall Street Journal. This decision is said to be due to the fact that Russian locomotive builders have greatly increased their output. To date Soviet Russia has ordered 1,200 locomotives from foreign countries, particularly Germany and Sweden, and it is said that most of the locomotives have been delivered.

French to Seize Railways in the Ruhr

The French will seize and operate all railways in the occupied territory of the Ruhr where the German employees refuse to remain at their posts. Soldiers and railway men imported from France will be utilized in operating the roads which are thus taken over. Meanwhile the French have offered relatively high wages to all German railway men who will stay at their posts and the German government has offered to indemnify all those who strike for the wages lost while striking.

Keystone

French Troops in Essen—Railway Station in Background

Equipment and Supplies

Locomotives

THE GREAT NORTHERN is in the market for 25 Pacific type and 25 Mountain type locomotives.

THE AKRON, CANTON & YOUNGSTOWN is inquiring for 3 or 5 Consolidation type locomotives.

THE CHICAGO JUNCTION has ordered 5, 0-8-0 type switching locomotives from the Lima Locomotive Works.

THE NEW YORK, CHICAGO & ST. LOUIS has ordered 30 Mikado type locomotives from the Lima Locomotive Works.

THE NEW YORK CENTRAL will have repairs made to from 25 to 50 Consolidation and Mikado type locomotives at the Beach Grove, Indiana, shops.

THE BINGHAM & GARFIELD is inquiring for nine 0-6-0 type switching locomotives and for one Consolidation type and one Mallet type locomotive.

THE OLIVER IRON MINING COMPANY, reported in the *Railway Age* of November 11 as intending to purchase 10 switching locomotives, has ordered 12, 8-wheel switching locomotives from the American Locomotive Company.

Freight Cars

THE UNION RAILROAD is inquiring for 100 flat cars.

THE CANADIAN NATIONAL is inquiring for 1,000 automobile cars.

SWIFT & CO. is building 200 refrigerator cars in its own shops.

THE NEW YORK CENTRAL is inquiring for from 5 to 10 special flat cars.

THE UTAH COPPER COMPANY is inquiring for 50 ore cars of 80 tons' capacity.

THE CHICAGO, NORTH SHORE & MILWAUKEE is inquiring for 20 general service cars.

THE NEW YORK, CHICAGO & ST. LOUIS is now inquiring for 500 drop end gondola cars.

THE LION OIL COMPANY has ordered 100 tank cars from the Chicago Steel Car Company.

THE BUFFALO & SUSQUEHANNA is inquiring for 200 all steel hopper car bodies of 55 tons' capacity.

THE REPUBLIC IRON & STEEL COMPANY is inquiring for 50 flat-bottom gondola cars of 70 tons' capacity.

THE CAROLINA, CLINCHFIELD & OHIO is inquiring for underframes and superstructures for 10 caboose cars.

THE WILLCOX OIL & GAS COMPANY has ordered 10, 8,000 gal. tank cars from the Standard Tank Car Company.

THE GENERAL PETROLEUM CORPORATION has ordered 21 insulated tank cars of 10,000 gal. capacity from the Pennsylvania Tank Car Company.

THE ATLANTIC COAST LINE is inquiring for 500 sets of steel underframes and superstructures for box cars to be built in its own shops.

THE ELGIN, JOLIET & EASTERN is inquiring for 300 structural steel side-dump cars and 500 composite gondola cars, both to be of 70 tons' capacity.

THE SOUTHERN PACIFIC has ordered 575, 50-ton general service cars from the Ralston Steel Car Company and is having 500 logging cars built in the shops of its Pacific system.

THE AMERICAN TAR PRODUCTS COMPANY, reported in the *Railway Age* of January 27 as inquiring for 10 tank cars, has ordered 20 tank cars of 10,000 gal. capacity from the Standard Tank Car Company and has also given an order to this company for insulating 10 additional tank cars.

THE ILLINOIS CENTRAL, reported in the *Railway Age* of January 13 as inquiring for 125 caboose cars and 2,000 composite gondola cars, has ordered the 125 caboose cars from the American Car & Foundry Company, 1,750 composite gondola cars from the Pullman Company, 750 from the General American Car Company and 500 each from the Bettendorf Company and the Keith Car & Manufacturing Company.

Passenger Cars

THE UNION PACIFIC is inquiring for 10 horse baggage cars.

THE LIGONIER VALLEY is inquiring for one suburban coach and one suburban passenger and baggage car.

THE CANADIAN NATIONAL is not inquiring for 10 horse baggage cars, as was reported in our issue of January 27.

THE CENTRAL VERMONT will have 8 coaches and 2 baggage cars built at the Port Huron, Mich., shops of the Grand Trunk.

THE MOBILE & OHIO has ordered one combination mail and baggage car, 60 ft. long and of steel construction, from the American Car & Foundry Company.

THE UNION PACIFIC, reported in the *Railway Age* of January 6 as inquiring for 10 steel dining cars and 8 steel observation cars, has ordered this equipment from the Pullman Company.

THE CENTRAL OF GEORGIA, reported in the *Railway Age* of January 13 as inquiring for 2 baggage and express and 2 partition coaches, has ordered this equipment from the Pullman Company.

THE WESTERN PACIFIC, reported in the *Railway Age* of January 6 as inquiring for 20 coaches, 8 dining cars and 20 baggage cars, has ordered 20 coaches and 8 dining cars from the Pullman Company and 20 baggage cars from the Pressed Steel Car Company.

THE NEW YORK CENTRAL has ordered 6 coaches from the American Car & Foundry Company. These are for use on the Peoria & Eastern. An order has also been given to the Standard Steel Car Company for 8 combination baggage and mail cars for use on the Michigan Central and for 1 combination baggage and mail car for use on the Toledo & Ohio Central.

Iron and Steel

THE ILLINOIS CENTRAL has ordered 18,000 tons of standard steel rail from the Illinois Steel Company.

THE CHICAGO & NORTH WESTERN has ordered 190 tons of structural steel from the Milwaukee Bridge Company.

Signaling

THE CANADIAN PACIFIC plans to install automatic block signals at Petain, B. C., on the Kettle Valley Railway and at Kicking Horse Canyon between Field, B. C., and Golden.

THE GREAT NORTHERN has ordered from the General Railway Signal Company four low-voltage switch machines, an interlocked desk circuit controller, signals and other apparatus to be installed at Java, Mont. Java is to be the end of the double track.

THE LONG ISLAND has let to the Union Switch & Signal Company a contract for remodeling the automatic block signaling and adding fourteen new signals between Locust avenue, Jamaica, N. Y., and Springfield Junction. Alternating current is used exclusively on this work, which embraces new impedance bonds, relays and transformers. The present transmission line of 2,200 volts, 25 cycles, will be retained. The Long Island has also ordered from the Union Company a new 52 lever Saxby & Farmer interlocking machine for Mineola, N. Y., with 47 working levers.

Supply Trade News

Sauerman Brothers, engineers and manufacturers, Chicago, have moved their offices from the Monadnock block to 438 South Clinton street, Chicago.

H. G. Smith, whose election as vice-president of the **Bethlehem Shipbuilding Corporation, Ltd.,** was mentioned in the *Railway Age* of January 27, was graduated from the United States Naval Academy in 1891. He was also graduated from the course in naval architecture at the Royal Naval College, Greenwich, England. From 1893 to 1903 he was first assistant naval constructor and later naval constructor in the United States navy. Part of this time he was on duty at William Cramp & Sons Ship & Engine Building Company's Yard, then at the New York Navy Yard and later at Washington. He resigned from the navy on November 1, 1903, to become manager of the Fore River Ship & Engine Company and later of the Fore River Shipbuilding Company, now the Fore River plant of the Bethlehem Shipbuilding Corporation, Ltd. From 1913 to 1917 he served as vice-president and general manager of the Fore River Shipbuilding Corporation and then as manager of the Bethlehem Shipbuilding Corporation, Ltd., until 1920. Later he served as assistant to president of the same corporation until his election as vice-president as above noted.

H. G. Smith

Percival Chrystie has been elected president of the **Taylor-Wharton Iron & Steel Co.,** High Bridge, N. J., to succeed the late Knox Taylor. **Samuel M. Buck** of High Bridge, N. J., has been elected a director to fill the unexpired term of Mr. Taylor. Mr. Chrystie was formerly vice-president and has been acting president since Mr. Taylor's death. Mr. Chrystie was born in High Bridge, N. J., and was educated in the local school and also the Leal School of Plainfield, N. J., and Turner's Academy, Pittsfield, Mass. He started to work for the company as office boy during his school vacations, later serving in the shops and the various departments until he became inspector. He then went into the sales department. Returning to the plant, he worked up to the position of superintendent of the steel foundry, then served as secretary and treasurer and finally as vice-president, a position he held for many years. He has been for over thirty years in the service of the company. As president of the Taylor-Wharton Iron & Steel Co., he is also president of its subsidiaries, the William Wharton, Jr., & Co., Easton, Pa.; Tioga Steel & Iron Co., Philadelphia, and Philadelphia Roll & Machine Co., Philadelphia.

P. Chrystie

S. I. Hopkins, representative of the **Safety Car Heating & Lighting Company,** with headquarters at St. Louis, Mo., has been promoted to manager of the St. Louis office.

H. E. Seifried, secretary-treasurer of the Stone Franklin Company, St. Louis, Mo., has been appointed assistant to the vice-president of the **Franklin Railway Supply Company, Inc.,** Chicago, succeeding H. M. Clawson, resigned.

Royal E. Terhune has been placed in charge of the northern New Jersey sales territory of the **Uehling Instrument Company,** Paterson, N. J., manufacturers of CO recorders and other power plant equipment. Mr. Terhune was formerly associated with the Uehling Laboratories.

The Steigelmeyer Manufacturing Company, Seymour, Ind., proprietor of an automatic train control system, is to be incorporated under the laws of Delaware and proposes to build a shop at Seymour. **W. G. Lee,** Cleveland, Ohio, president of the Brotherhood of Railroad Trainmen, is president of the Steigelmeyer Company.

C. O. Congdon, district engineer of the Missouri Pacific, with headquarters at Kansas City, Mo., has been appointed vice-president and chief engineer of the **T. S. Leake Construction Company,** Chicago. He was born at Monticello, Ind., January 3, 1885, and was graduated from Purdue University in 1906. He entered railway service with the Vandalia in June, 1906, and in June, 1907, entered the employ of the Missouri Pacific in the engineering department. From January, 1909, until June, 1909, Mr. Congdon served as roadmaster on the Central Kansas division, returning to the engineering department at Osawatomie, Kan., on the latter date. In February, 1910, he was promoted to assistant division engineer, with headquarters at Atchison, Kan., and in November, 1911, was advanced to division engineer at Coffeyville, Kan., which position he held until June, 1915, when he was transferred to Falls City, Neb. He served in the Army Transport service in France from March, 1918, to March, 1919, when he returned to the Missouri Pacific as division engineer with headquarters at Osawatomie, Kan. He held this position until 1920, when he was appointed trainmaster of the Central Kansas—Colorado division, with headquarters at Hoisington, Kan., which position he held until 1921, when he was promoted to district engineer, with headquarters at Kansas City, Mo.

C. O. Congdon

H. F. Mattern has been appointed sales manager of the **Reading Iron Company,** Reading, Pa., to succeed E. F. Mishler, whose death occurred on December 11, 1922. Mr. Mattern joined the Reading Iron Company in 1911 as a salesman, and was given the New England and southern territories to cover. In 1919 he was appointed assistant sales manager.

The Standard Conveyor Company, North St. Paul, Minn., has acquired by purchase all the rights, titles and patents pertaining to the Brown Portable line of portable and sectional piling, elevating, conveying, loading and unloading machinery for the handling of packed and loose materials. This machinery has been manufactured by the Brown Portable Conveying Machinery Company at North Chicago for the past ten years.

The American Engineering Company, Philadelphia, Pa., manufacturers of Taylor stokers and marine auxiliaries, has taken over the Standard Crane & Hoist Company and the patent and manufacturing rights to the mono-rail electric hoist formerly known as the Standard. **H. S. Valentine,** chief engineer of the Standard Crane & Hoist Company, is directing the sales and supervising the manufacture of the hoists for the American Engineering Company.

Edward F. Chaffee, manager of the railroad department of the O. M. Edwards Company, Inc., Syracuse, N. Y., has been elected a vice-president of that company. Mr. Chaffee has been identified with railroad and allied industries since his boyhood. Eighteen years ago he went with the Edwards Company from the New York Central where he had charge of the passenger car shops at West Albany. His first work for the Edwards Company was in the capacity of eastern sales representative. Six years later he was promoted to manager of the company's railroad department.

E. F. Chaffee

The Sykes Company, with headquarters at Kenosha, Wis., has been organized for the manufacture and sale of gasoline driven rail equipment. The personnel of the new organization includes: **C. E. Sykes,** Ardmore, Okla., president; **C. S. Lynch,** Ardmore, Okla., secretary and treasurer; **A. M. Russell,** Kenosha, Wis., vice-president, formerly president and organizer of the Russell Company, Kenosha, Wis.; **J. A. Hennan,** Ardmore, Okla.; **M. T. Winther,** Kenosha, Wis., president of Winther Motors, Inc., and formerly vice-president of the Russell Company; **Ray Koehler,** formerly chief engineer of the Winther Motors, Inc.; **J. F. Sattley,** formerly general manager of the central region of the Russell Company, and **C. A. Sattley,** formerly general manager of the eastern region of the Russell Company.

Complaint Issued Against Steel Merger

In a complaint issued on January 28, the Federal Trade Commission challenges the Bethlehem-Lackawanna-Midvale steel merger. At the same time an earlier complaint in the matter of the Bethlehem-Lackawanna merger was dismissed without prejudice. The new complaint cites the Bethlehem Steel Corporation, Bethlehem Steel Company, Bethlehem Steel Bridge Corporation, Lackawanna Steel Company, Lackawanna Bridge Works Corporation, Midvale Steel and Ordnance Company and Cambria Steel Company. Thirty days are allowed for the filing of answer, thereafter a date of hearing will be fixed by the commission.

Each of three groups—the Bethlehem, Lackawanna, Midvale—are described in the complaint as forming an integrated concern, each having subsidiaries engaged in mining iron ore, coal, limestone, and in transporting and assembling those raw materials from which each integrated concern manufactures and produces crude, semi-finished, and finished iron and steel products and commodities. Each group is thus said to own and control all stages of the production of the products and commodities sold, from the raw materials to the semi-finished and finished products.

The complaint describes the competition existing between the Bethlehem-Lackawanna group prior to the first merger, and the competition existing between the Bethlehem, Lackawanna and Midvale groups at the time of the proposed three-company merger. Information is given as to the location of the various plants, their capacities and products and the percentages of semi-finished and finished steel products produced by the several groups, particularly in the competitive territory above described. The complaint then recites that the Bethlehem, Lackawanna and Midvale groups are the only iron and steel manufacturers in this particular territory with a capacity of a million or more tons of steel ingots per year, and states that other steel producers in this territory are relatively small, no more than one of them having a capacity of one-half million tons of steel ingots per year; that the steel-producing concerns in this territory other than the merging groups are not thoroughly integrated; that is, they do not own their own iron ore, coal and limestone as do the merging companies. The complaint states that the particular competitive field involved; that is, the territory north of the Potomac River and east of a line drawn north and south through Buffalo, N. Y., and Johnstown, Pa., is a large and popular section of the country with a great demand for steel and steel products; that the nearest steel-producing section to this territory, exclusive of the merging companies' plants, is Pittsburgh, Pa., with respect to which the merging companies have a freight distributive advantage in their own territory, as described, of from one to three dollars a ton over the steel producers in and around Pittsburgh.

Further, the complaint alleges that the union of the respondents has a dangerous tendency to hinder competition in the steel and iron industry in the territory described, and is therefore in violation of Section 5 of the Federal Trade Commission Act.

Commissioner Van Fleet dissents to the issue of this complaint.

President E. G. Grace, of the Bethlehem Steel Corporation, in a statement, calls attention to the following: When the Bethlehem-Lackawanna merger and the proposed Midvale-Republic-Inland merger were announced, two investigations were instituted at the request of the United States Senate, one by the Department of Justice and the other by the Federal Trade Commission. The Department of Justice, in its report to the Senate, declared both transactions to be free from any taint or illegality. The Federal Trade Commission, however, felt bound to institute a formal proceeding to test the legality of the two mergers and filed complaints against each. Bethlehem proceeded with the acquisition of the Lackawanna properties, relying upon the report of the Attorney-General and the advice of its counsel that the transaction was entirely legal. Before the public announcement of Bethlehem's proposed acquisition of the Midvale property, advance information was given, as courtesy required, both to the Department of Justice and to the Federal Trade Commission. The Federal Trade Commission, as was expected, advised us that, pursuant to the policy they had adopted, they would, in due course, amend the proceeding already pending to test the legality of the Bethlehem-Lackawanna merger so as to include Bethlehem's acquisition of the Midvale properties. The complaint now announced was accordingly fully expected. Bethlehem is proceeding with the acquisition of the Midvale property just as it did with the acquisition of the Lackawanna property, relying upon the report of the Department of Justice and the advice of its counsel, confident that the legality of both transactions will be sustained.

Obituary

Clarence S. Bement, former president of the Bement-Miles Company, now the Niles-Bement-Pond Company, died at Philadelphia, Pa., on January 27 at the age of 80.

Trade Publications

INTERNAL COMBUSTION ENGINES.—The Stover Manufacturing & Engine Company, Freeport, Ill., has issued a 24-page booklet describing its line of internal combustion engines. The engines listed range from 1 to 30-hp. capacity and include both the make-and-break type for gasoline and kerosene fuels and the semi-Diesel type for fuel oil. Halftone illustrations are given of the various models and specifications of each type are included with the descriptive matter contained.

SAFEGUARDING VITAL RECORDS OF BUSINESS.—This is a well-illustrated 50-page booklet explaining some of the methods used in protecting records from fire and their efficacy with a discussion of the importance of adequate protection for important records and papers. The pamphlet is issued by the General Fireproofing Company, Youngstown, Ohio, and it describes its Label "A" GF Allsteel Safe with an interesting account of the severe tests to which this type of safe has been put by the Underwriters' Laboratories.

Railway Construction

ATCHISON, TOPEKA & SANTA FE.—This company contemplates the construction of two new roundhouses, a car repair house and extensive yard improvements at Emporia, Kan., to cost approximately $5,000,000.

CANADIAN PACIFIC.—This company has awarded a contract to the Hurst Engineering & Construction Company, Winnipeg, Man., for the construction of a one-story, frame freight shed, 80 ft. by 400 ft., at Ft. William, Ont., to replace a shed recently destroyed by fire.

CANADIAN PACIFIC.—This company has authorized improvements on its Western lines, as follows: A new passenger station will be built at Lake Windermere, B. C.; work is to be continued on the lining of the Connaught tunnel on the main line in British Columbia, and a tunnel on the Crow's Nest line is to be lined with concrete; a number of wooden bridges on the Kettle Valley and on the Esquimalt & Nanaimo are to be replaced with steel structures and the branch line from Okanagan Landing, B. C., to Oliver, Alta., is to be completed. The construction of a new terminal office building at Victoria is also contemplated.

CARBON COUNTY.—This company has been granted authority by the Interstate Commerce Commission to construct 4½ miles of first track in Carbon county, Utah, to cost approximately $294,000.

CENTRAL OF GEORGIA.—This company has completed negotiations with the city authorities of Columbus, Ga., preliminary to the elimination of three important street crossings in that city. The work will involve a highway viaduct and a subway and will enable the road to enlarge its yard, which work is also contemplated.

CHICAGO & EASTERN ILLINOIS.—This company contemplates the construction of a new roundhouse and shop buildings at Evansville, Ind., to cost approximately $3,000,000.

CHICAGO & NORTH WESTERN.—This company has awarded a contract to Roberts Brothers, Chicago, for the construction of six miles of second track between Limestone, Ill., and Radnor.

CHICAGO & NORTH WESTERN.—This company contemplates the construction of a new shop building and the extension of yard facilities at Madison, Wis.

CHICAGO UNION STATION.—This company closed bids on February 1 for the erection of the steel work for the headhouse of the Union Station.

FT. WORTH & DENVER CITY.—This company has awarded a contract to J. T. Taylor, Ft. Worth, Tex., for the construction of washroom facilities at Childress, Tex., as reported in the *Railway Age* of January 13.

GRAND TRUNK.—This company is preparing plans and estimates for the grade separation project at Detroit, Mich., involving the expenditure of approximately $4,000,000, which was reported in the *Railway Age* of January 13, and expects to call for bids in from 60 to 90 days.

GREAT NORTHERN.—This company will construct second main track for 19 miles between Java, Mont., and Nyack; for 8 miles between Wheelock, N. D., and Spring Brook; and for 7 miles between Kandiyohi, Minn., and Atwater. Contracts for the construction in Montana have been let, but grading in North Dakota and Minnesota is not expected to begin until April.

ILLINOIS CENTRAL.—An application has been filed with the Interstate Commerce Commission for a certificate authorizing the construction of the line from Edgewood, Ill., to Fulton, Ky., described in last week's issue. The Southern Illinois & Kentucky is to build the line from Edgewood to a connection with the Paducah & Illinois at Metropolis, Ill., 123.7 miles, with a 7-mile branch from Akin to a connection with the Benton & Southern, and the Chicago, St. Louis & New Orleans the line from Fulton, Ky., north to a connection with the Paducah & Illinois just south of the Ohio river, 42.1 miles and the Illinois Central asks authority to acquire and hold the stock of the Southern Illinois & Kentucky and to lease and operate the new line.

ILLINOIS CENTRAL.—This company has awarded a contract to A. Guthrie, St. Paul, Minn., for the grading of 38 miles of second track from Central City, Ky., to Dawson Springs, reported in the *Railway Age* of December 30. This company has awarded a contract to Joseph E. Nelson & Sons, Chicago, for the construction of a new freight house and passenger station at Covington, Ky., to cost approximately $75,000, reported in the *Railway Age* of December 23.

INDIANAPOLIS UNION.—This company contemplates the elevation of a portion of its track in the city of Indianapolis, Ind.

MINNEAPOLIS & ST. LOUIS.—This company contemplates the construction, jointly with the city of Ft. Dodge, Ia., of a reinforced concrete viaduct in that city to cost approximately $36,000.

MISSOURI PACIFIC.—This company will close bids on February 2 for the construction of a 147-ft. by 201-ft., one-story, brick machine shop at Ewing avenue, St. Louis, Mo.

NORTHERN PACIFIC.—This company contemplates the construction of a boiler shop at Livingston, Mont., reported to cost approximately $150,000.

OKMULGEE NORTHERN.—This company contemplates the construction of 25 miles of first track from Okmulgee, Okla., to Checota.

PACIFIC SOUTHWESTERN.—The Interstate Commerce Commission has issued a certificate authorizing this company to construct a line from Lompoc to White Hills, Calif., 4 miles.

PHILADELPHIA & READING.—This company has awarded a contract to the McMyler-Interstate Company, Bedford, Ohio, for furnishing and erecting at their Port Richmond terminal, Philadelphia, a 120-ton car dumping machine to replace the gravity trestle pier No. 18, which was destroyed by fire on November 24. This coal dumping machine will cost $1,500,000 and will be capable of handling all sizes of cars. The new plant is to consist of a pier 900 ft. long, with car dumping machine, power plant, thawing plant, car haulage machinery, mechanical trimming and boat haulage machine, and machines designed to deliver coal direct from railroad cars to vessels. Provision will be made for delivering coal to vessels of the type usually engaged in the coal trade, not exceeding a beam of 60 ft. or a height of 36 ft. from the water line to the top of the hatch. This machine will be capable of handling 40 cars per hour at the high elevation for delivering to maximum size vessels, and 43 cars for loading the smaller type vessels of the coal trade. On the lower end of the telescopic chute will be placed a mechanical trimmer. A "barney" or car haulage machine will be provided for hauling cars from the foot of the incline on to the cradle of the dumper. The thawing house is to be 440 ft. long, having four stalls, each capable of handling 11 cars, or a total of 44 cars at one time. The entire plant is to be complete and ready for service by the fall season of the current year.

ST. LOUIS-SAN FRANCISCO.—This company will close bids February 7 for the construction of a 96-ft. by 27-ft., one-story, brick freight and passenger station at Springdale, Ark., as reported in the *Railway Age* of January 13.

THE OREGON-WASHINGTON RAILROAD & NAVIGATION COMPANY has been granted a permanent injunction restraining striking shopmen from interference with the company's employees or property by the United States District Court at Spokane, Wash. One picket will be permitted at each entrance to the railroad property.

THE AGRICULTURAL DEPARTMENT of the Chicago, Rock Island & Pacific held meetings in 30 towns throughout Arkansas between January 23 and 26, to instruct the farmers in the principles of farming and soil fertility and to urge them to make the most profitable use of their land. Editors, leaders of agricultural associations and representatives of the railroad's agricultural department were the principal speakers.

Railway Financial News

ANN ARBOR.—*New Director.*—S. E. Summerfield, president of the Gotham Silk Hosiery Company, of New York City, has been elected a director.

BUFFALO, ROCHESTER & PITTSBURGH.—*Dividends Declared.*—This company has declared the regular semi-annual dividends of $2 on the common and $3 on the preferred, both payable February 15 to stock of record February 10.

The following statement was issued after the meeting of the directors:

Due to the practical suspension of coal mining in central Pennsylvania for five months, combined with the strike of shopmen, the road suffered a serious decline in its tonnage and will report a deficit of about $1,200,000 for the year. Equipment and other property has been well maintained, however, and during the last quarter of the year the road has been able to handle a maximum volume of tonnage with satisfactory net results. Dividends will be paid out of surplus accumulated in previous years.

CHESAPEAKE & OHIO.—*New Board Named.*—As a result of the acquisition of H. E. Huntington's stock holdings by the Van Sweringen interests the board of directors of the Chesapeake & Ohio has been reorganized. On January 30 O. P. Van Sweringen, M. J. Van Sweringen, Otto Miller, J. J. Bernet, J. R. Nutt, C. L. Bradley, and W. A. Colston were elected directors of the Chesapeake & Ohio, succeeding H. E. Huntington, C. E. Graham, H. O. Ferguson, Robert Gibson, A. C. Rearick, G. B. Wall and H. T. Wickham, who resigned.

The Interstate Commerce Commission on January 30 authorized the seven directors of the Nickel Plate to hold places on the Chesapeake & Ohio board. The commission in its decision said:

We have made the necessary inquiry and have given the necessary consideration in this case. It appears that increased opportunity of the C. & O. for the distribution beyond its western junctions of tonnage which it originates, will be in the interest of the C. & O. and its security holders. Likewise, additional facilities, connections and relations influencing the routing of tonnage over the C. & O. will inure to its advantage. It has been shown to our satisfaction that the influence and activities of the new directors whom it is proposed to elect to the C. & O. board will bring to the company additional facilities and strength and tend to promote the company's best interest. It is obvious, too, that similar benefits may inure to the western connections of the C. & O. and that the improved relation will be to the advantage of shippers tributary to the lines involved.

CHICAGO, ATTICA & SOUTHERN.—*Asks Authority to Issue Bonds.*—This company has applied to the Interstate Commerce Commission for authority to issue $1,500,000 of first mortgage bonds at not less than 85 to retire existing indebtedness and to rehabilitate and provide with equipment the railroad it has purchased, formerly a part of the Chicago & Indiana Coal Railway.

CHICAGO, MILWAUKEE & ST. PAUL.—*New Director.*—John McHugh, president of the Mechanics & Metals National Bank, has been elected a director.

CHICAGO WAREHOUSE & TERMINAL COMPANY.—*Authorized to Issue Notes.*—The Interstate Commerce Commission has authorized an issue of $150,000 of promissory notes payable to the Chicago, Burlington & Quincy for advances made by it in construction of additional facilities.

ERIE.—*Asks Authority to Extend Bonds.*—This company has applied to the Interstate Commerce Commission for authority to extend for ten years an issue of $4,617,000 of New York & Erie Railroad third mortgage 4½ per cent bonds and to assume obligation and liability in connection therewith.

FT. SMITH & WESTERN RAILROAD.—*Reorganization.*—The receiver of this company was discharged by order of the United States District Court for the Western district of Arkansas, effective January 31. The new corporation will be known as the Ft. Smith & Western Railway Company. C. T. O'Neal, receiver and general manager, with headquarters at Ft. Smith, Ark., has been elected a director and vice-president of the new corporation, in charge of the management and operation of its properties, with the same headquarters.

GEORGIA, FLORIDA & ALABAMA.—*May Be Acquired.*—See Muscle Shoals, Birmingham & Pensacola.

ILLINOIS CENTRAL.—*To Acquire Interest in Paducah & Illinois.*—This company has applied to the Interstate Commerce Commission for authority to execute a contract between the Paducah & Illinois, the Nashville, Chattanooga & St. Louis, the Union Trust Company of Chicago and the Illinois Central, under which it agrees to reimburse the N. C. & St. L., and the C. B. & Q. for a portion of the amounts they may be obligated to pay on account of their guaranty of the Paducah & Illinois first mortgage bonds. The Illinois Central proposed to acquire one-third interest in the stock of the railroad in order to obtain the use of its bridge over the Ohio river by acquiring 16⅔ shares of stock each from the N. C. & St. L. and the C. B. & Q., which will be assigned to the Union Trust Company of Chicago as trustee.

LOUISVILLE & NASHVILLE.—*Asks Authority for Equipment Trust.*—This company has applied to the Interstate Commerce Commission for authority to issue $6,300,000 of 4½ per cent equipment trust certificates to be used in the purchase of equipment to cost $7,951,115.

MADISON SOUTHERN.—*Authorized to Abandon Line.*—The Interstate Commerce Commission has issued a certificate authorizing the abandonment as to interstate and foreign commerce of this company's line extending 6.7 miles from Madison, Fla.

MISSOURI, KANSAS & TEXAS RAILWAY OF TEXAS.—*Charter Granted.*—This company has been granted a charter for reorganization by the State of Texas, the new corporation to be capitalized at $1,400,000. The headquarters of the company are to remain at Dallas, and the purchasing company will assume all debts of the former corporation. The incorporators of the new company include F. F. Randolph and D. W. Blumenthal of New York, who recently purchased the Texas lines at public auction for the reorganization manager, and W. L. Alexander, C. C. Huff, W. M. Whitenton, C. S. Sherwin, W. G. Crush, W. E. Forrest and T. L. Peeler of Dallas.

MUSCLE SHOALS, BIRMINGHAM & PENSACOLA.—*Asks Authority to Issue Certificates.*—This company has applied to the Interstate Commerce Commission for authority to issue $2,500,000 of stock, $3,000,000 of mortgage bonds and $1,500,000 of income bonds for the purpose of taking over the property of the Georgia, Florida & Alabama Railroad and building some additional lines which will give lines from Pensacola, Fla., to a point near Muscle Shoals with a branch line between Gateswood Junction and Gateswood, Ala., and between Pensacola and United States Naval Air Reservation, a total distance of 354 miles.

NEW YORK, CHICAGO & ST. LOUIS.—*Operations in 1922.*—See article on another page of this issue entitled "Nickel Plate Averages 44.1 Miles Per Car Per Day."

NORTHERN PACIFIC.—*Authorized to Issue Bonds.*—The Interstate Commerce Commission has authorized an issue of $17,859,000 of refunding and mortgage 5 per cent bonds. J. P. Morgan & Co., the First National Bank and the National City Company sold $10,000,000 of this issue last week at 99 and interest to yield about 5.05 per cent. The proceeds are to be used to supply cash working capital, and $7,859,000 is to be placed in the treasury.

READING COMPANY.—*New Plan Filed.*—The second modified plan for the dissolution of the combination maintained through the Reading Company, which was declared illegal by the United States Supreme Court in April, 1920, was filed in the United States District Court at Philadelphia on January 30.

Judge J. Whitaker Thompson in the Federal court, after the second plan was filed, fixed February 20 as the final day on which objections can be filed to the plan.

A statement issued by counsel for the Reading, embodying the changes from those in the first plan, said:

The plan contemplates dividing the liability of the Reading Company (with which will be merged the Philadelphia & Reading Railway Company), and the Philadelphia & Reading Coal & Iron Company on the $94,627,000 joint general mortgage bonds outstanding, in the proportion of two-thirds to the Reading Company and one-third to the coal company.

In pursuance of an intimation contained in the decision of the Supreme Court, the plan further contemplates transferring to equity in the stock of

the Reading Iron Company, subject to the general mortgage, from the Reading Company to the Philadelphia & Reading Coal & Iron Company for the sum of $8,000,000, to be paid by the latter to the former, the iron company having first paid a dividend of $6,000,000, out of surplus assets to the Reading Company.

The plan now submitted does not differ in any other material respect from that which was approved by the District Court in June, 1921. The right of both preferred and common stockholders of the Reading Company to purchase certificates of interest in 1,400,000 shares of no-par stock of the new coal company is unchanged. Such 1,400,000 shares will be sold to Reading stockholders for $4 a share. As there are 2,800,000 shares of Reading stock, this means a payment of $2 per share of Reading stock outstanding.

The plan is accompanied by a supplement offering to the holders of the general mortgage bonds the privilege of receiving in exchange for each $1,000 principal amount of bonds surrendered:

One hundred dollars cash; $600 4 per cent 74-year general (or, if and when practicable, first) and refunding mortgage gold bonds. Series A, of the Reading Company; $300 of 4½ per cent 50-year refunding mortgage sinking fund gold bonds of the coal company.

This offer is conditional upon the acceptance by the holders of at least 75 per cent of the amount of the bonds.

The "new coal company" referred to in the third paragraph of the statement is provided for in the orginal plan.

Railroad Administration Settlements

The United States Railroad Administration reports the following final settlements, and has paid out and received from the several roads the following amounts:

Chicago, Indianapolis & Louisville Railway Company	$150,000
Washington Terminal Company	1
Sunset Railway Company paid Director General	100,000
Houston Belt & Terminal Railway Company paid Director General	11,500
SHORT LINES	
New Castle & Ohio River Railway Company	3,000
Lime Rock Railroad Company	3,500

Dividends Declared

Buffalo, Rochester & Pittsburgh.—Common, $2.00, semi-annually; preferred, $3.00, semi-annually; both payable February 15 to holders of record February 10.

Central of New Jersey.—2 per cent, quarterly, payable February 15 to holders of record February 7.

Delaware & Hudson.—2¼ per cent, quarterly, payable March 20 to holders of record February 26.

Green Bay & Western.—5 per cent, annually, payable February 10 to holders of record February 9.

Pennsylvania Railroad.—1½ per cent, quarterly, payable February 28 to holders of record February 1.

Trend of Railway Stock and Bond Prices

	Jan. 30	Last Week	Last Year
Average price of 20 representative railway stocks	66.32	64.68	56.35
Average price of 20 representative railway bonds	84.54	84.24	81.53
railway stocks	66.32	64.68	56.35

THE DIXON CONSTRUCTION & REPAIR COMPANY, a New Jersey corporation, has asked the United States District Court at Chicago to restrain the United States Labor Board from publishing a decision, made January 6, holding null and void certain contracts between the Dixon Company and the Western Maryland Railroad. These contracts, for repairing Western Maryland cars and locomotives, were held to violate the Transportation Act, as under them Western Maryland employees were taken out from under the jurisdiction of the board and made subject to the rules of a private corporation.

THE INTER-CALIFORNIA RAILWAY, a subsidiary of the Southern Pacific, operating from Calexico, Cal., to Yuma, Ariz., on a line running through Mexico, suspended freight traffic on January 25, following the announcement by Mexican authorities of a 10 per cent tax on the gross revenue of railroads operating in Mexico. The new tax is in addition to the two per cent tax on freight traffic and five per cent tax on passenger traffic which were already in effect. The company is also handicapped by additional charges made by the customs services on both sides of the international boundary line for train crossings.

Railway Officers

Operating

H. N. Rodenbaugh, chief engineer of the Florida East Coast with headquarters at St. Augustine, Fla., has been promoted to general manager with the same headquarters.

The jurisdiction of **R. F. Finley,** joint superintendent of telegraph of the New York Central and the Western Union Telegraph Company, has been extended over the Ohio Central lines of the New York Central, effective February 1.

A. B. Buckworth, general manager of the Pacific Great Eastern, with headquarters at Vancouver, B. C., has been appointed deputy minister of railways of British Columbia. **T. Kirkpatrick,** inspector of bridges, has been promoted to general manager, succeeding Mr. Buckworth. **A. L. Carruthers,** government district engineer, with headquarters at Prince Rupert, B. C., has been promoted to inspector of bridges, succeeding Mr. Kirkpatrick.

E. T. Whiter, assistant to the vice-president in charge of personnel of the Pennsylvania, has been appointed acting vice-president of the Northwestern region with headquarters at Chicago, effective February 1. This action has been made necessary by the illness of **J. G. Rogers,** vice-president of the Northwestern region, and **T. B. Hamilton,** general manager, both of whom have been granted extended leaves of absence. **W. B. Wood,** general superintendent of the Illinois division, has been appointed acting general manager of the Northwestern region during the absence of Mr. Hamilton.

Traffic

E. A. Phillips has been appointed contracting agent for the El Paso & Southwestern, with headquarters at Chicago.

J. H. Barrickman, city freight agent on the Louisville & Nashville at Louisville, Ky., has been promoted to general agent, with the same headquarters, succeeding J. J. Dignan, deceased.

A. F. Tinsley, traveling passenger agent for the Missouri Pacific, with headquarters at St. Louis, Mo., has been promoted to general agent of the passenger department, with headquarters at Cincinnati, Ohio, succeeding J. A. Steltenkamp, deceased.

Lt.-Col. Herbert Swinford, general agent for the Northern Pacific with headquarters at Vancouver, B. C., who has been identified with the traffic department of that company in both Winnipeg and Vancouver for the past 22 years, will retire from active service on March 31.

E. E. Nelson, assistant general passenger agent of the Northern Pacific, with headquarters at St. Paul, Minn., has been transferred to Seattle, Wash., in the same capacity. **W. H. Ude,** general agent at Spokane, Wash., has been promoted to assistant passenger agent, with headquarters at Chicago. **F. J. Berry,** general agent at Winnipeg, Man., has been transferred to Spokane, succeeding Mr. Ude. **J. C. Spracklin,** traveling freight agent, with headquarters at Winnipeg, has been promoted to general agent, with the same headquarters, succeeding Mr. Berry.

J. O. Mason, whose promotion to general passenger agent of the El Paso & Southwestern, with headquarters at El Paso, Tex., was reported in the *Railway Age* of December 30, was born on August 2, 1874, at Boston, Mass. He entered railway service in 1895, in the office of the auditor of freight receipts of the Atchison, Topeka & Sante Fe, at Topeka, Kan. He remained in the service of the Santa Fe until February, 1902, when he was appointed rate clerk on the El Paso & Southwestern, with headquarters at El Paso, Tex. He was subsequently promoted to chief clerk to the general freight

and passenger agent, and when the freight and passenger departments were separated, he remained as chief clerk to the general passenger agent. He was serving in this capacity in December, 1922, when he was promoted to general passenger agent, with headquarters at El Paso, Tex.

C. M. Teschemacher, general agent for the operating department of the Chicago & Alton, with headquarters at Chicago, Ill., has been promoted to assistant general freight agent, with the same headquarters, succeeding J. A. Behrle, whose promotion to general freight agent was reported in the *Railway Age* of November 25. Mr. Teschemacher was born at Lawrenceville, Ill. He entered railway service in 1895 as rate clerk on the Cleveland, Cincinnati, Chicago & St. Louis, with headquarters at Vincennes, Ind., and was later promoted to relief agent in the same district. He entered the service of the Chicago & Alton as agent at Peoria, Ill., in 1903, and was transferred to Kansas City, Mo., in 1905. He served in this capacity until 1912, when he was promoted to general agent for the operating department, with headquarters at Chicago, which position he held at the time of his recent promotion to assistant general freight agent.

Mechanical

Robert Collett, whose appointment as fuel agent of the St. Louis-San Francisco was announced in the *Railway Age* of January 20, page 256, entered railway service in 1895 as a locomotive fireman for the St. Louis-San Francisco. Five years later he was promoted to locomotive engineman and in 1905 was appointed road foreman of engines. In 1909 he became superintendent of locomotive fuel service and held that position until 1914, when he resigned to become assistant manager of the railway lubricating department of the Pierce Oil Corporation, St. Louis, Mo. From July 1, 1918, to March 1, 1920, he was assistant manager of the fuel conservation section of the U. S. Railroad Administration in charge of fuel conservation in the Eastern region. Upon the return of the roads to private operation, he became superintendent of fuel and locomotive performance of the New York Central and held that position until he re-entered the service of the St. Louis-San Francisco, as noted above.

Engineering Maintenance of Way and Signaling

A. H. Oelkers, whose appointment to chief mechanical engineer of the St. Louis-San Francisco, with headquarters at Springfield, Mo., was reported in the *Railway Age* of January 6, was born on October 4, 1885, on a ranch near New Braunfels, Tex. He entered railway service in 1901, as an apprentice machinist on the Southern Pacific, at San Antonio, Tex., and held this position until 1904, when he entered Purdue University. He was graduated from the university in 1907, with a degree in mechanical engineering. He re-entered the service of the Southern Pacific in September of that year, being assigned to road locomotive tests and miscellaneous work in the motive power department, with headquarters at Houston, Tex. He was promoted to head draftsman in 1910, and held this position until January, 1912, when he was promoted to mechanical engineer of the lines in Texas and Louisiana. During 1916 and 1917 he served as general shop foreman and supervisor of construction and new equipment, but resigned in August, 1918, to enlist in the U. S. Naval Aviation Service. Following his discharge from the navy in February, 1919, he was appointed master mechanic on the Louisiana lines of the Southern Pacific, which position he held until March, 1920, when he was promoted to assistant superintendent of motive power and engineering. He resigned from this position on December 31, 1922, to enter the service of the St. Louis-San Francisco as chief mechanical engineer.

A. H. Oelkers

E. B. Fithian, division engineer of the Missouri Pacific with headquarters at Poplar Bluff, Mo., has been promoted to district engineer, western group, with headquarters at Kansas City, Mo., succeeding C. O. Congdon, resigned.

H. C. Johnson, division engineer of the Pennsylvania with headquarters at Logansport, Ind., has been transferred to the Cincinnati division with headquarters at Cincinnati, Ohio, succeeding **F. N. Crowell,** who has been transferred to the Southbend division with headquarters at Logansport, Ind.

P. M. Gault, office engineer of the signal department of the Illinois Central, with headquarters at Chicago, has been promoted to assistant signal engineer, with the same headquarters. **A. R. Whitehorn,** signal inspector, with headquarters at Chicago, has been promoted to office engineer of the signal department, succeeding Mr. Gault.

W. G. Brown, engineer of roadways of the Florida East Coast with headquarters at St. Augustine, Fla., has been promoted to engineer maintenance of way with the same headquarters. **Calvin Oberdorf,** principal engineer of construction with headquarters at St. Augustine, has been promoted to engineer of construction with the same headquarters.

S. J. Bratager, principal assistant engineer of the Northern Pacific with headquarters at St. Paul, Minn., has been appointed assistant chief engineer with the same headquarters. **L. Yager,** engineer maintenance of way with headquarters at St. Paul, has been appointed assistant chief engineer, with the same headquarters. **A. R. Cook,** principal assistant engineer, lines west of Paradise, with headquarters at Seattle, Wash., has been appointed assistant chief engineer and engineer maintenance of way, lines west of Paradise, with the same headquarters.

Obituary

M. W. Burns, general agent of the freight department of the Chicago & Eastern Illinois, died on January 25, at his home at Chicago.

Benjamin F. Cresson, Jr., chief engineer for the Port of New York Authority, died at Montclair, N. J., on January 25. Mr. Cresson was born in Philadelphia in 1873 and was educated at the Episcopal Academy of that city, at Lehigh University and at the University of Pennsylvania, from which latter institution he was graduated in 1894 with the degree of bachelor of science in civil engineering. Mr. Cresson was engaged in engineering work on the Lehigh Valley, Pennsylvania and the West Virginia Short Line from 1894 to 1900. In 1901 he joined the staff of Jackobs & Davies, consulting engineers, New York, who were identified with the early studies for the Hudson river vehicular tunnel and other similar projects. Mr. Cresson devoted his attention to subaqueous construction and assisted in the Atlantic avenue improvements of the Long Island Railroad in Brooklyn, the construction of the Hudson & Manhattan tunnels and a section of the Pennsylvania station developments in New York. In 1910 Mr. Cresson was appointed first deputy commissioner of docks and ferries of the City of New York. A year later he was appointed by Woodrow Wilson, then governor of New Jersey, as chief engineer of a commission of inquiry into port conditions of the state. In 1914 he was appointed chief engineer of the New Jersey Harbor Commission and, in 1915, chief engineer of the New Jersey Board of Commerce and Navigation. In 1917 he became consulting engineer for the same board and in the same year he was appointed chief engineer of the New York-New Jersey Port and Harbor Development Commission, the work of which resulted in the joint port treaty and the formation of the Port of New York Authority, with which Mr. Cresson continued as chief engineer up to the time of his death.